



CLEANENERGY FUELING PRODUCTS

Europe • Middle East • Africa



- Nozzles
- In-Line Breakaways
- Hose and Hose Accessories
- Accessories
- Services
- Receptacles



CLEANENERGY FUELING PRODUCTS

Helping to Make the World a Greener, Bluer Place.

We are dedicated to continuous innovation in the design, engineering and manufacture of high-quality components used for alternative fueling applications, such as CNG (compressed natural gas) on vehicles and dispensing systems. A division of OPW and the global leader in fueling solutions since 1892, OPW CleanEnergy Fueling Products is a name synonymous with innovation, quality, reliability and customer service. OPW CleanEnergy Fueling Products offers the most complete selection of alternative fueling products in the industry, with each product designed and built to exacting engineering specifications for fueling safety and efficiency.

We believe that blue skies, clean water and being green are good business. Through environmentally safe, alternative fueling systems, we can have a world of cleaner air, cleaner water and sustainable fueling. OPW CleanEnergy Fueling Products is Leading the Way in fueling your future, offering global solutions for CNG, LPG, and Hydrogen products, including Nozzles, Breakaways, Adaptors and Factory Tested Hose Assemblies.

CleanEnergy Fueling Products

- Glossary of Terms.....1 - 3
- CNG Product Compatibility Matrix.....4 - 5
- CNG Installation Instruction Sheet Parts.....6
- Rebuild Services.....6

CNG Fueling Products

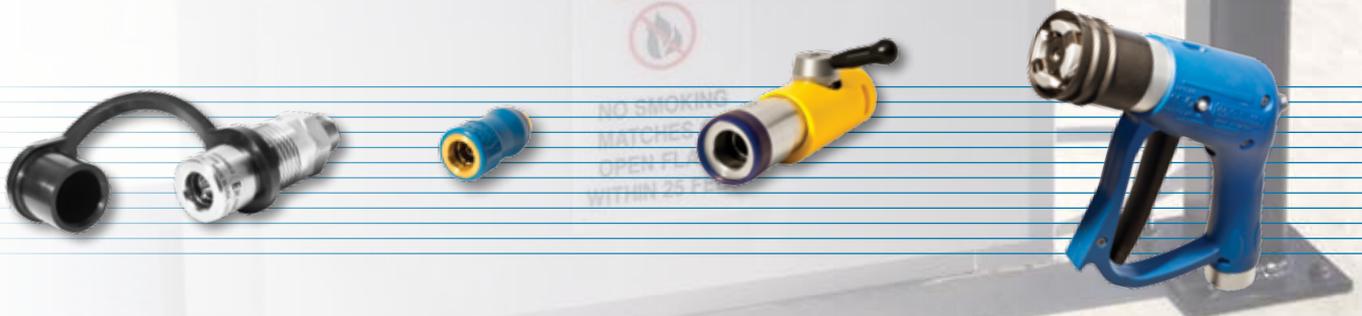
- Nozzles.....7- 17
- Breakaways.....19 - 23
- Hose and Hose Retractors.....24 - 28
- Accessories.....29 - 30
- Receptacles.....31 - 34

LPG Fueling Products

- Autogas Nozzles.....35 - 37
- Accessories.....38 - 40

Hydrogen Fueling Products

- Nozzles.....41 - 43
- Accessories.....44 - 45



Glossary of Terms

Interchangeability Between Service Pressures -The nozzle and receptacle have been designed such that to prevent a vehicle from being fueled by a higher rated dispenser than a lower rated vehicle service pressure. However, a lower rated dispenser system can fill a higher service pressure vehicle. This is controlled by the geometry of the receptacle and nozzle.

Nozzle Types

There are three types of nozzles:

- a. **Type 1** – This is a nozzle with an integrated vent valve system. This vent valve is controlled by the single lever operation which will safely vent the gas trapped between the receptacle check valve and the nozzle inlet valve. After the venting process, the nozzle will disconnect from the vehicle's receptacle.
- b. **Type 2** - The vent valve operating mechanism is external to the nozzle. Venting is required prior to disconnection of this type of nozzle.
- c. **Type 3** – The fueling hose is automatically depressurized below 50psi (3.4Bar) at dispenser shutdown. The nozzle will vent low pressure gas between the receptacle check valve and the nozzle inlet valve.

Nozzle Class

There are two nozzle classifications, Class A and Class B

- a. **Class A nozzle** – This nozzle has a high frequency of use, with a cycle life of 100,000 fueling cycles. This is approximately 100 fills per day for 3 years.
- b. **Class B nozzle** – This nozzle has a medium frequency of use, with a cycle life of 20,000 fueling cycles. This equates to approximately 10 fills per day for 5 years.

Receptacle Design Life

All receptacles are designed to be capable of a minimum of 10,000 connection/disconnection cycles to be compliant to ISO 14469, NGV1 and J2600.

Breakaway Design Life

All breakaways are designed to be capable of a minimum of 102,000 fill cycle events to meet the NGV4.4 Standard.

Pressure Meanings

Service Pressure

OPW CNG products are designed to operate to pressures specified in ISO-14469 for Europe (World), NGV1 for North America and for Hydrogen SAE J2600. Defined as the settled pressure at a uniform gas temperature, World (15C), North America (70F)

- a. For North America the service pressures are 3000psi and 3600psi
- b. For Europe (World) the service pressures are 200bar and 250bar
- c. Hydrogen service pressures are 3600psi (250bar) and 5000psi (350bar)

Working Pressure

SAE J2600 defines this as "Service Pressure", the pressure for which the product is intended to be operated at for a given gas temperature of 15C.

Maximum Allowable Working Pressure (MAWP)

For all OPW Clean Energy products the MAWP is 1.25 times the rated service pressure.

- a. **Working Pressure** – ISO-14469 and ECE defines this as **MAWP**, the maximum pressure that a CNG refueling connector can be expected to withstand in actual service.
- b. **Design Pressure** – SAE J2600 (Hydrogen) defines this as **MAWP**, the maximum pressure that a component will experience in actual service which is 1.25 times the working pressure (service pressure).

Hydrostatic Pressure

Pressure to which a component is taken to verify the structural strength of the component.

- a. **CNG** – OPW equipment is tested to 4 times the maximum allowable working pressure 18,125psi (1250bar)
- b. **Hydrogen** – OPW equipment is tested to 3 times the maximum allowable working pressure 18,850psi (1300bar)

Test Pressure

The pressure to which a component is taken during acceptance testing. OPW tests all products at the pressure prior to shipment for product validation, in most cases 5438psi (375bar) unless otherwise specified.

Glossary of Terms (continued)

Product Markings

Nozzles

Will be marked with manufacturing company, nozzle type, class and product name, as well as:

- a. Manufacturing country
- b. Pressure ratings
- c. CSA and /or TUV and CE logos
- d. Year of manufacture
- e. Serial number

In-line Breakaways

Will be marked with manufacturing company and product name, as well as:

- a. Gas type
- b. Serial number
- c. Pressure ratings
- d. Year of manufacture
- e. Operating temperature range
- f. Manufacturing country
- g. TUV and CE logos

Receptacles

Will be marked with manufacturing company and product name, as well as:

- a. Pressure ratings
- b. Temperature ratings
- c. Manufacturing country
- d. Batch code
- e. ECE R110, TUV and/ or CSA logos

PT = Test Pressure

PS = Service Pressure

MAWP = Maximum Allowable Working Pressure

Standard the Product is Certified to:

- a. NGV1, ISO 14469 -1 & -3 for light duty nozzles CT1000, CC600, CC300, CC200 series and L series receptacles
- b. ISO 14469-2 for heavy-duty nozzles CT5000S, CC6000 and CL series receptacles.

Certifying Agencies: TUV and CSA will be marked clearly on product

Service Pressure Markings:

- a. B200 = 200 bar
- b. P30 = 3000 psi
- c. B250 = 250 bar
- d. P36 = 3600 psi
- e. C200 = 200 bar

Generic Terms:

Accessory

A part capable of performing an independent function(s) and contributing to the operations of the equipment that it serves.

Breakaway Device

OPW sells "hose breakaways". These are items that are downstream of the dispenser and connected to it by a whip hose. This will allow the breakaway to align to the direction of pull during a drive off event.

C_v

Flow Coefficient lets one compare the capacities of valves at different sizes, types and manufacturers. C_v combines the effects of all flow restrictions in the valve into a single number. When comparing flow rates, a higher C_v value indicates higher flow (less flow restriction), whereas a lower C_v value indicates lower flow (higher flow restriction).

Fill Pressure

The pressure attained at the time of filling. The actual fill pressure will vary depending on the temperature of the gas in the container and the ambient conditions.

Go – No Go or Fit Gage

A go-no go or fit gage is designed to test the wear on the jaws and front sleeve of OPW nozzles, or to test the condition of an NGV receptacle.

1. Nozzle:

- a. If the nozzle go-no go gage (JAWGO-1, JAWGO-5) connects properly to the Go side it's considered good, as long as it cannot connect to the No Go side. If the nozzle can connect to the No Go side or cannot connect to the Go side then the front sleeve and jaws of the nozzle should be replaced (replacement kits available).

Glossary of Terms (continued)

- b. If the nozzle go-no go gage proves the jaws to be good, yet the jaws won't connect to the vehicle's receptacle, the receptacle should be replaced.

2. Receptacle:

- a. If the receptacle fit gage (RINGO-0001) connects properly to the receptacle it is considered good. If the receptacle cannot connect to the fit gage then the receptacle should be replaced.
- b. If the receptacle fit gage proves the receptacle to be good yet the nozzle will not connect to the vehicle's receptacle, the nozzle jaws and front sleeve should be replaced (replacement kits available).

NPT Threads

OPW does not use NPT threads on its products. According to ANSI NGV1 -2008, "The use of threaded connections which rely on the joint between the male and female threads for sealing, such as NPT threads, is prohibited."

NGV Profile

A receptacle that is NGV1 approved must comply with the geometry set forth in the NGV1 standard. Receptacles that meet NGV1 will not have interchangeability restrictions and will permit the safe connection/ disconnection of the fueling nozzle. (See interchangeability).

Positive Locking

A feature that requires actuation of an interlocking mechanism to allow connection/disconnection of the nozzle from the receptacle.

References:

E/ECE/324, E/ECE/Trans/505: Rev.2/Add.109/Rev.1

SAE International, SAE J2600: 2002:10

ISO-TC197 N0489 Revised ISO DIS 17268.2: NA032-03-06 AA N94

ISO 14469-3: 2006-07-15

ANSI NGV1-2008 / CSA NGV1 -2008

ANSI /AGA NGV3.1 -1995: CGA NGV12.3 -M95: -2007

ANSI/IAS NGV 4.4 -1999: CSA 12.54-M99: 2009

CleanEnergy Hose Kit Compatibility Matrix



			Hose Kit Component	Time Fill			Light Duty (LD)					Heavy Duty (HD)		Extra Heavy Duty (XHD)	Defueling	
				2' Whip Hose / 14' Main Hose	2' Whip Hose / 18' Main Hose	8' Whip Hose / 12' Main Hose	2' Whip Hose / 8.3' Main Hose	2' Whip Hose / 8.3' Main Hose	2' Whip Hose / 10' Main Hose	2' Whip Hose / 13' Main Hose	2' Whip Hose / 13' Main Hose	2' Whip Hose / 8.3' Main Hose	2' Whip Hose / 8.3' Main Hose	2' Whip Hose / 8.3' Main Hose	10' Whip Hose / 2' Main Hose	25' Whip Hose / 25' Main Hose
				TFCNG KIT-14C36	TFCNG KIT-20B36	TFCNG KIT-20D36	LDCNG KIT-11	LDCNG KIT-11 FLB	LDCNG KIT-12	LDCNG KIT-15A	LDCNG KIT-20B36	HDCNG KIT-11	HDCNG KIT-11FLB	XHDCNG KIT-10	LDCN DPK-12	XFLDCNG KIT-50
Nozzles	NGV1	Type 1	PGXXP30	X	X	X	Contact OPW for Quote					X	X	X	X	X
		PGXXP36	X	X	X	Contact OPW for Quote					X	X	X	X	X	
		CT1000SS (3,000 psi/ 200 bar)	X	X	X	X	X	X	✓	X	X	X	X	X	X	
		CT1000P36S (3,600 psi/ 250 bar)	X	X	X	✓	✓	✓	X	X	X	X	X	X	✓	
	Type 2 & 3	CC600 Series Nozzle including 3-Way Valve (3WV series) (3,600 psi/ 250 bar & 3,000 psi/ 200 bar)	✓	✓	✓	X	X	X	X	✓	X	X	X	X	X	
	Bus / High Flow	Type 1	CT5000S (3,600 psi/ 250 bar)	X	X	X	X	X	X	X	X	✓	✓	✓	X	X
	Defueling	BDN (3,600 psi/ 250 bar)	X	X	X	X	X	X	X	X	X	X	X	✓	✓ with 3WV-46D	
Fill Line Break-aways	Standard Duty	ILB-1	X	X	X	✓	X	X	X	X	X	X	X	X	X	
		FLB-1000	X	X	X	X	X	X	X	X	X	X	X	✓	X	
		CNGBREAK KIT-1000	✓	✓	✓	X	✓	✓	✓	✓	X	X	X	X	✓	
Fill Line Break-aways	Bus / High Flow	ILB-5	X	X	X	X	X	X	X	X	✓	X	X	X	X	
		FLB-5000	X	X	X	X	X	X	X	X	X	X	X	X	X	
		CNGBREAK KIT-5000	X	X	X	X	X	X	X	X	X	✓	✓	X	X	
Vent Line Breakaways		NGVLB	✓	✓	X	✓	X	✓	✓	✓	✓	✓	✓	X	X	
Hose Retractor		6102-CNG	X	X	X	✓	✓	✓	✓	✓	X	X	X	X	✓	
		6102-CNG2	X	X	X	X	X	X	X	X	✓	✓	✓	✓	X	

Installation & Operation Instructions

Installation and operating instructions are included with all new and rebuilt products; however, they may also be ordered separately

Instruction Sheet Item Number	Item Description
207943	FLB-1000, FLB-5000 Breakaway Installation & Operating Instructions
207732	NGVLB Breakaway Installation & Operating Instructions
H14914M	ILB-1, ILB-5 Breakaway Installation & Operating Instructions
201494	ILB-1, ILB-5 Breakaway Repair Kit Instructions
H13741M	CT1000, CT5000 Series Nozzle Installation & Operating Instructions
001563	CT1000 and CT5000 Series Nozzle Jaw Replacement Instructions
H13857M	CC200 Series Nozzle Installation & Operating Instructions
H13795M	CC300 Nozzle Installation & Operating Instructions
H13742M	CC600 Series Nozzle Installation & Operating Instructions
001562	CC600 Series Nozzle Jaw Replacement Instructions
H14076M	CC6000 Nozzle Installation & Operating Instructions
H13744M	LB30, LB36, LD, LE, CL40 and CL4078 Receptacles Installation Instructions
H13747M	LB3078, LB3678 & CL5078 Receptacles Installation Instructions
H14441PA	CL50 Series Receptacle Installation Instructions
H13745M	CL5000, CL5016 Receptacle Installation Instructions
210382	PG Series Installation Instructions

Part Kits and Factory Rebuild Service

OPW is pleased to offer nozzle and breakaway rebuild services. Rebuilds include (where applicable) replacement of all internal seals, O-rings, valves, jaws, handle, protective sleeves, spring supports, guide rings and vent tubes. In addition, all OPW Factory rebuilt products are 100% full-function tested before being redeployed.

KIT Item #	Description	
207563	NGVLB Repair Kit	OPW Factory Parts. Labor by Authorized Field Technician
A157	ILB-1 INLINE BREAKAWAY CNG & H2 NGV-1 REPAIR KIT	
A155	ILB-5 INLINE BREAKAWAY HD/TRUCK REPAIR KIT	
A156	CT1000SS JAW REPLACEMENT KIT	
A158	CT1000LS JAW REPLACEMENT KIT	
A159	CT1000P36S JAW REPLACEMENT KIT	
A152	CT5000S JAW REPLACEMENT KIT	
A153	CC600 SS JAW REPLACEMENT KIT	
20XXXX	PG SERIES P36 Jaw Replacement Kit	
20XXXX	PG SERIES P30 Jaw Replacement Kit	

REPAIR Item #	Description	
FLB-1000 REPAIR	FLB-1000 STANDARD DUTY FILL-LINE BREAKAWAY REBUILD	OPW Factory Parts, Labor & Full-Function Testing by OPW Lab Technician
FLB-5000 REPAIR	FLB-5000 HEAVY DUTY FILL-LINE BREAKAWAY REBUILD	
ILB-1 REPAIR	ILB-1 INLINE BREAKAWAY CNG & H2 NGV-1 REBUILD	
ILB-5 REPAIR	ILB-5 INLINE BREAKAWAY HD/TRUCK REBUILD	
CT1000SS REPAIR	CT1000SS NOZZLE TYPE 1 CLASS A (P30) REBUILD	
CT1000LS REPAIR	CT1000LS NOZZLE TYPE 1 CLASS A (P30) REBUILD	
CT1000P36S REPAIR	CT1000P36S NOZZLE TYPE 1 CLASS A (P36) (SST JAWS) REBUILD	
CT5000S REPAIR	CT5000S TYPE 1 HEAVY DUTY BUS/TRUCK NOZZLE REBUILD	
BDN REPAIR	BDN DEFUELING NOZZLE CNG (P30/P36) REBUILD	
CH1000 REPAIR	CH2000 FUEL NOZZLE TYPE 1, CLASS A (P36) REBUILD	
CH2000 REPAIR	CH2000 FUEL NOZZLE TYPE 1, CLASS A (P36) REBUILD	
CW3600 REPAIR	CW3600 SAE HYDROGEN NOZZLE TYPE 1 CLASS A (P36) REBUILD	
CW5000 REPAIR	CW5000 SAE HYDROGEN NOZZLE TYPE 1 CLASS A (P50) REBUILD	
PG Repair P36		
PG Repair P30		



CNG Fueling Nozzles

OPW CleanEnergy Fueling Products offers an extensive line of CNG Fueling Nozzles to meet a wide variety of fueling applications. OPW CNG nozzles are used throughout the world.



200 Series (NGV1, Type 3)

OPW 200 Series time-fill nozzles are designed for low-flow CNG fueling systems. Applications include home fueling devices and fleets that use overnight or time-fill fueling.



300 Series (NGV1, Type 2 or 3)

The OPW Fil-Mate™ 300 is a versatile nozzle designed for both medium and low-flow CNG fueling systems. Applications include home fueling devices, overnight or time-fill fueling and fleet filling.



600 Series (NGV1, Type 2 or 3)

OPW Fil-Master™ 600 Series fast-fill/fleet-fill nozzles are designed for high-flow CNG fueling systems. Applications include quick-fill fueling of automobiles, light trucks, shuttle buses, vans and time-fill or overnight fleet fueling.



1000 Series (NGV1, Type 1)

OPW 1000 Series self-service nozzles are designed for high-flow public and private CNG fueling systems. Applications include quick-fill, self-service fueling of automobiles, light trucks, shuttle buses and vans.



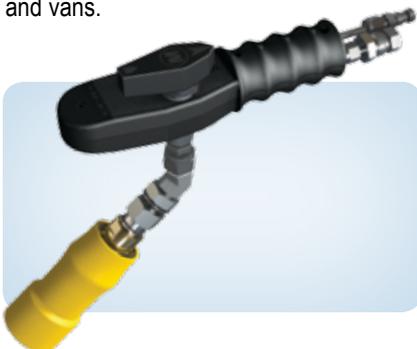
5000 Series (Type 1)

OPW 5000 Series nozzles are designed for extremely high-flow public and private CNG fueling systems. Applications include quick-fill, self-service fueling of transit buses and large trucks.



6000 Series (Type 2)

OPW 6000 Series nozzles are designed for extremely high-flow public and private CNG fueling systems when connected to OPW CL50 series receptacles. Applications include quick-fill, self-service fueling of transit buses and large trucks.



CNG Type 2 Fueling System

The OPW CleanEnergy CNG 3-Way Valve and Type 2 Nozzle features the latest in industrial and commercial fueling innovations. Ergonomically designed to be easy to use, grip and prevent unnecessary wear and tear during the fueling process.



Pistol Grip Series Self-Service Nozzles (NGV1 Type1)

OPW Pistol Grip Series Self-Service Nozzles are designed for high-flow public and private CNG fueling systems. Applications include quick-fill, self-service fueling of automobiles, light trucks, shuttle buses and vans.



CC200 Series Time-Fill Nozzles (NGV1 Type 3)

OPW 200 Series Time-Fill nozzles are designed for low-flow CNG fueling systems. Applications include home fueling devices and fleets that use overnight or time-fill fueling.

Ordering Specifications

Product #	Inlet Thread Size	Service Pressure
CC250	SAE - 6, 9/16" - 18 UNF	P30 - 3000 psi (200 bar)
CC270	SAE - 6, 9/16" - 18 UNF-LH (Left-Handed) For use with Fuelmaker™ home fueling device.	P30 - 3000 psi (200 bar)

Connects to any L-Series-NGV-1 CNG Receptacle

Materials

- Body:** Stainless steel
- Jaws:** Stainless steel
- Seals:** Specially formulated elastomers specific to high-pressure NGV applications.

CC270
Coupling End

CC270 Hose
Connection End

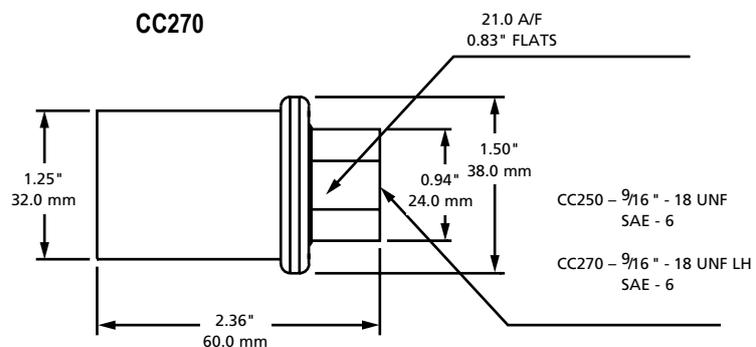


Features

- **Easy Slide-Back Collar Operation** - for smooth, simple engaging/disengaging of nozzle and receptacle. The 200 Series nozzle is designed to remain securely connected to the receptacle until the nozzle is depressurized after fueling is complete.
- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of the high-pressure gas connections of NGV fueling. Forces at the contact point are distributed over the entire surface area of the receptacle.
- **Compact Design** - lightweight, compact design allows for easy one-handed operation.
- **Durable Construction** - stainless steel construction provides excellent corrosion resistance in the harsh refueling environment.
- **Meets NGV1 Fueling Standard** - can be used to fuel any vehicle with an NGV1 profile receptacle. (See pages 4 - 5)

Specifications:

Min. Flow Rate: 800 SCFM @ 3000 psid
 Temperature Range: -40° F to 185° F
 (-40° C to 85° C)
 Weight: 0.53 lb. (0.24 kg)
 Cv: 0.55
 MAWP: 4532 psi (312.5 Bar)



Listings and Certifications





Materials

Body: Brass

Jaws: Stainless steel

Seals: Specially formulated polymers and elastomers specific to high pressure NGV applications.



CC300P30S
Coupling End

CC300P30S Hose
Connection End

Features

- User-Friendly Push-On/Pull-Off

Operation - For smooth, simple engaging and disengaging of nozzle and receptacle without the added step of pulling back a collar. The 300 is designed to remain securely connected to the receptacle until the nozzle is depressurized after fueling is complete.

- **Type** - Designed as a Type 2 or 3 nozzle for use with P30 or P36 NGV1 receptacles.

- **Jaw-Lock Technology** - Designed specifically for the frequent coupling and uncoupling of the high-pressure gas connections of NGV fueling. Forces at the contact point are distributed over the entire surface area of the receptacle.

- **Ergonomic Design** - Has a comfortable "tool-grip" specially formulated urethane coated sleeve which locks in place upon connection. Also incorporates "easy-guide" front alignment ring to smooth connection on hard to reach receptacles.

- **Durable Construction** - Brass & Stainless Steel construction provides excellent corrosion resistance in the harsh refueling environment.

- **Safe Disconnect** - Accidental disconnection under pressure is very difficult due to our unique force multiplier design.

- **Meets NGV1 Fueling Standard** - Can be used to fuel any vehicle with an NGV1 profile receptacle. (See pages 4 - 5)

Specifications:

Min. Flow Rate: 1000 SCFM @ 3000 psid

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Weight: 1.30 lb.(0.59 kg.)

Cv: 1.05

MAWP: 4532 psi (312.5 Bar)

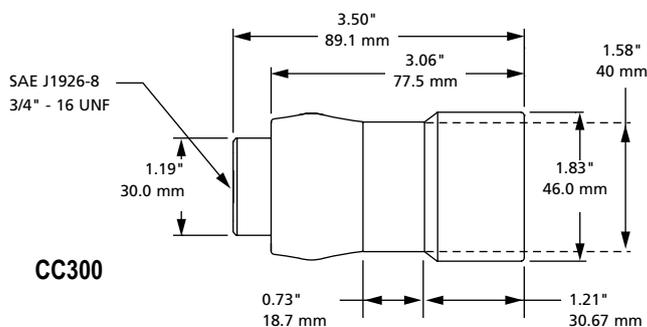
Fil-Mate™ CC300 Series General Purpose Nozzles (NGV1 Type 2 or 3)

The OPW Fil-Mate 300 is a versatile nozzle designed for both medium and low-flow CNG fueling systems. Applications include home fueling devices, overnight or time-fill fueling and fleet filling.

Ordering Specifications

Product #	Inlet Thread		Service Pressure
	Size	Color	
CC300P30S	SAE - 8, 3/4" - 16 UNF	Blue	P30 - 3000 psi (200 bar)
CC300P36S	SAE - 8, 3/4" - 16 UNF	Yellow	P36 - 3600 psi (250 bar)

Connects to any L-Series-NGV-1 CNG Receptacle



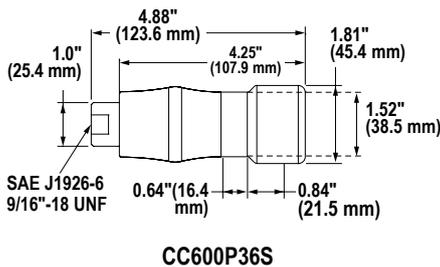
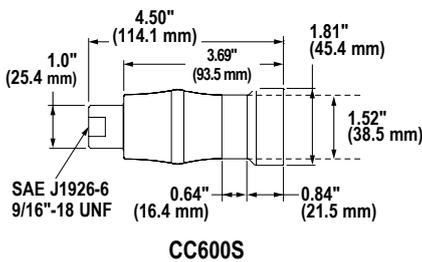
Listings and Certifications





FIL-MASTER™ CC600 Series Fast-Fill/ Fleet-Fill Nozzles (NGV1 Type 2 or 3)

OPW Fil-Master™ 600 Series Fast-Fill/
Fleet-Fill Nozzles are designed for high-
flow CNG fueling systems. Applications
include quick-fill fueling of automobiles,
light trucks, shuttle buses, vans and
time-fill or overnight fleet fueling.



Ordering Specifications

Product #	Inlet Thread Size	Color	Service Pressure
CC600P30NFS	SAE - 6, 9/16" - 18 UNF	Blue	P30 - 3000 psi (200 bar)
CC600S	SAE - 6, 9/16" - 18 UNF	Blue	P30 - 3000 psi (200 bar)
CC600P36NFS	SAE - 6, 9/16" - 18 UNF	Yellow	P36 - 3600 psi (250 bar)
CC600P36S	SAE - 6, 9/16" - 18 UNF	Yellow	P36 - 3600 psi (250 bar)

NOTE: NF nozzles do not include 200 micron filter.
Connects to any L-Series-NGV-1 CNG Receptacle

In-The-Field Repair Kits Available.
See page 6 for Ordering Details

Materials

- Body:** Brass
- Jaws:** Stainless steel
- Filter:** Stainless steel, 200 micron
- Seals:** Specially formulated polymers and elastomers specific to high-pressure NGV applications



Features

- **User-Friendly Push-On/Pull-Off Operation** for smooth, simple engaging and disengaging of nozzle and receptacle without the added step of pulling back a collar. The CC600 is designed to remain securely connected to the receptacle until the nozzle is depressurized after fueling is complete.
- **High-Flow/Fast-Fill Capability** - to provide quick fueling of medium storage vehicles. Internal seals are specially designed to meet the demands of fast-fill NGV fueling.
- **Internal Filter Option** - to capture gas-borne debris commonly found in CNG systems. Filter offers protection against impurities in the high velocity gas stream that can damage the nozzle and receptacle seals and the vehicle fuel system.
- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of the high-pressure gas connections of NGV fueling. Forces at the contact point are distributed over the entire surface area of the receptacle.
- **Ergonomic Design** - fits the operator's

hand for easy one-hand connecting and disconnecting. Insulated jacket provides thermal protection for operator's hand.

- **Durable Construction** - brass and stainless steel construction provides excellent corrosion resistance in the harsh refueling environment.
- **Meets NGV1 Fueling Standard** - can be used to fuel any vehicle with an NGV1 profile receptacle. (See pages 4 - 5)
- **Individually Leak Tested and Inspected with Traceable Serial Number.**

Specifications:

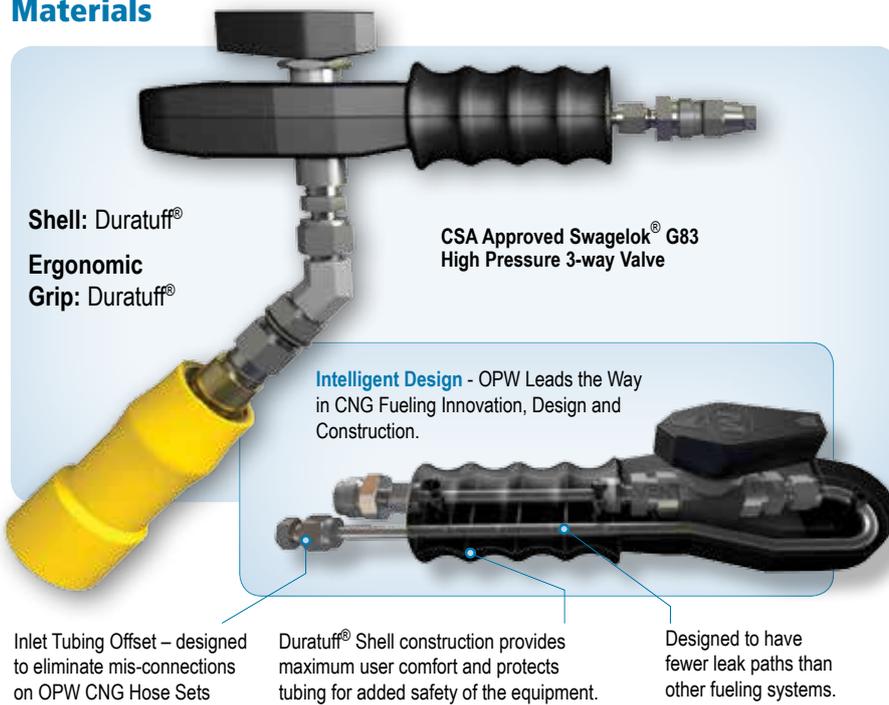
Min. Flow Rate: 1500 SCFM @ 3000 psid
Temperature Range: -40° F to 185° F (-40° C to 85° C)
Weight: 1.34 lb. (0.61 kg)
Cv: 1.05
MAWP: 4532 psi (312.5 Bar)

**Listings and
Certifications**





Materials



Shell: Duratuff®
Ergonomic Grip: Duratuff®

CSA Approved Swagelok® G83 High Pressure 3-way Valve

Intelligent Design - OPW Leads the Way in CNG Fueling Innovation, Design and Construction.

Inlet Tubing Offset – designed to eliminate mis-connections on OPW CNG Hose Sets

Duratuff® Shell construction provides maximum user comfort and protects tubing for added safety of the equipment.

Designed to have fewer leak paths than other fueling systems.

Features

- **Hose Connection Options** - Time-Fill Applications - 4/4 Sized Hose (1/4" Inlet and 1/4" Vent). Fast-Fill Applications - 4/6 Sized Hose (3/8" Inlet and 1/4" Vent)
- **Ergonomic Grip** - Duratuff® Grip provides maximum user comfort and control
- **Duratuff® Shell** - Specifically designed to handle operational wear-and-tear as well as protecting your vehicle from dents and scratches during fueling.
- **CNG Type 2 Fueling System Extension Options** - Offers the convenience of connection flexibility.

Operators can connect to vehicles regardless of the application. Use one of four different connection options; 3/4", 45°, 4" Rigid or 17" Flex Hose to help in fueling difficult-to-reach receptacles or tanks.

- **CC600S Series Nozzle** - OPW CC600S (3,000 psi) and CC600P36S (3,600 psi) Nozzles feature an internal 200 micron filter to capture gas-borne debris commonly found in CNG fueling systems.



User Friendly Push-On/Pull-Off Operation



Compatible with NGV1 Profile Receptacle



Type 2 Nozzle for Time-Fill or Fast Fill Service



Flexible Extension Options to Meet Virtually Any Application

CNG Type 2 Fueling System

The OPW CleanEnergy CNG 3-Way Valve and Type 2 Nozzle features the latest in industrial and commercial fueling innovations. A Fueling System which bridges the gap between convenience and comfort, without sacrificing power or reliability. Ergonomically designed to be easy to use, grip and prevent unnecessary wear and tear during the fueling process.

FIL-MASTER™ CC600 Series Fast-Fill/ Fleet-Fill Nozzles (NGV1 Type 2 or 3)

OPW Fil-Master™ 600 Series Fast-Fill/ Fleet-Fill Nozzles are designed for high-flow CNG fueling systems. Applications include quick-fill fueling of automobiles, light trucks, shuttle buses, vans and time-fill or overnight fleet fueling.



Ordering Specifications

Product #	Inlet Thread Size	Color	Service Pressure
CC600S	SAE - 6, 9/16" - 18 UNF	Blue	P30 - 3000 psi (200 bar)
CC600P36S	SAE - 6, 9/16" - 18 UNF	Yellow	P36 - 3600 psi (250 bar)

NOTE: NF nozzles do not include 200 micron filter. Connects to any L-Series-NGV-1 CNG Receptacle

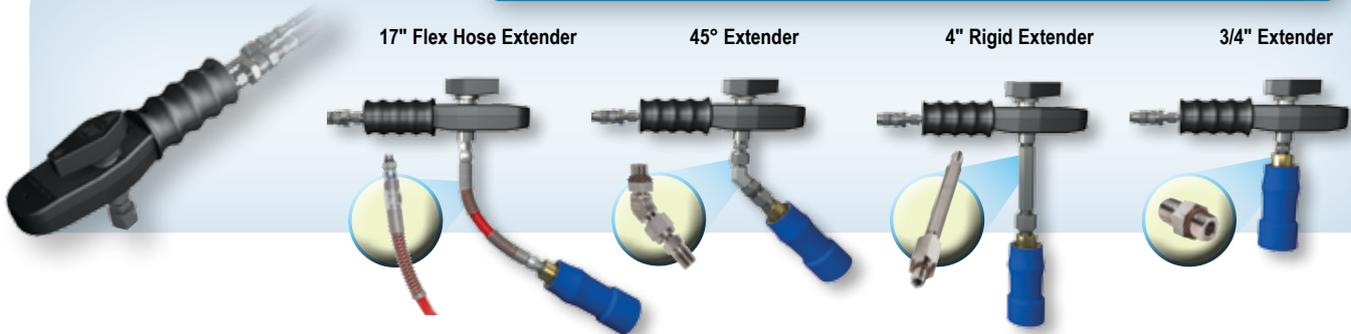
Listings and Certifications





CNG Type 2 Fueling System

FOUR EXTENDER OPTIONS TO CHOOSE FROM



Ordering Specifications

Product #	Description	Service Pressure
3WV-44	3-way valve, cover & outlet tubing with 4/4 connection	up to 5,000 psi / 345 bar
3WV-44A	3-way valve, cover, outlet tubing with 4/4 connection & 3/4" extender	
3WV-44B	3-way valve, cover, outlet tubing with 4/4 connection & 45 degree extender	
3WV-44C	3-way valve, cover, outlet tubing with 4/4 connection & 4" rigid extender	
3WV-44D	3-way valve, cover, outlet tubing with 4/4 connection & whip-hose extender	
3WV-44AP30	3-way valve, cover, outlet tubing with 4/4 connection, 3/4" extender & CC600S	3,000 psi / 200 bar
3WV-44BP30	3-way valve, cover, outlet tubing with 4/4 connection, 45 degree extender & CC600S	
3WV-44CP30	3-way valve, cover, outlet tubing with 4/4 connection, 4" rigid extender & CC600S	
3WV-44DP30	3-way valve, cover, outlet tubing with 4/4 connection, whip-hose extender & CC600S	
3WV-44AP36	3-way valve, cover, outlet tubing with 4/4 connection, 3/4" extender & CC600P36S	3,600 psi / 250 bar
3WV-44BP36	3-way valve, cover, outlet tubing with 4/4 connection, 45 degree extender & CC600P36S	
3WV-44CP36	3-way valve, cover, outlet tubing with 4/4 connection, 4" rigid extender & CC600P36S	
3WV-44DP36	3-way valve, cover, outlet tubing with 4/4 connection, whip-hose extender & CC600P36S	
3WV-46	3-way valve, cover, outlet tubing with 4/6 connection	up to 5,000 psi / 345 bar
3WV-46A	3-way valve, cover, outlet tubing with 4/6 connection & 3/4" extender	
3WV-46B	3-way valve, cover, outlet tubing with 4/6 connection & 45 degree extender	
3WV-46C	3-way valve, cover, outlet tubing with 4/6 connection & 4" rigid extender	
3WV-46D	3-way valve, cover, outlet tubing with 4/6 connection & whip-hose extender	
3WV-46AP30	3-way valve, cover, outlet tubing with 4/6 connection, 3/4" extender & CC600S	3,000 psi / 200 bar
3WV-46BP30	3-way valve, cover, outlet tubing with 4/6 connection, 45 degree extender & CC600S	
3WV-46CP30	3-way valve, cover, outlet tubing with 4/6 connection, 4" rigid extender & CC600S	
3WV-46DP30	3-way valve, cover, outlet tubing with 4/6 connection, whip-hose extender & CC600S	
3WV-46AP36	3-way valve, cover, outlet tubing with 4/6 connection, 3/4" extender & CC600P36S	3,600 psi / 250 bar
3WV-46BP36	3-way valve, cover, outlet tubing with 4/6 connection, 45 degree extender & CC600P36S	
3WV-46CP36	3-way valve, cover, outlet tubing with 4/6 connection, 4" rigid extender & CC600P36S	
3WV-46DP36	3-way valve, cover, outlet tubing with 4/6 connection, whip-hose extender & CC600P36S	



Materials

Body: Stainless steel & aluminum

Jaws: Stainless steel

Seals: Specialty polymers and elastomers for NGV applications.

Inlet filter and magnet in hand guard are standard.



PG32P30 nozzle

Features

- **High-Flow/Fast-Fill Capability** - provides quick fueling of medium storage vehicles. Internal seals are designed for fast-fill NGV fueling.
- **Ergonomic Design** - simple squeeze and release motion ensures connection and dispensing by all users. Insulated body to protect operator's hand.
- **Directed Vent** - captures the gas vented at disconnect and directs it out of the nozzle via a 1/4" stainless steel vent which can be piped to a remote venting location or back to the upstream side of the compressor. Capturing vent gas is environmentally desirable by agencies such as the EPA and provides an added measure of safety by minimizing the amount of gas present at the filling site. It also reduces vent noise and eliminates escaped gas smell.
- **User-Friendly Lever-Action Operation** - engage nozzle and receptacle with a familiar lever action. This secures nozzle jaws onto receptacle, activating a system of three internal valves that regulate fueling. The nozzle will not dispense gas until securely engaged onto an appropriate receptacle. When fueling is complete, squeeze and release the lever to automatically stop the flow of gas into the vehicle, vent the trapped gas and release the nozzle from the receptacle. Designed for public or private self-service applications, no attendant is needed.
- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of the high-pressure gas connections of NGV fueling. Forces at the contact point are distributed over the entire surface area of the receptacle.
- **Meets NGV1 Fueling standard** - can be used to fuel any vehicle with an NGV1 profile receptacle (see matrix).
- **Individually Leak Tested And Inspected With Traceable Serial Numbers**

Specifications:

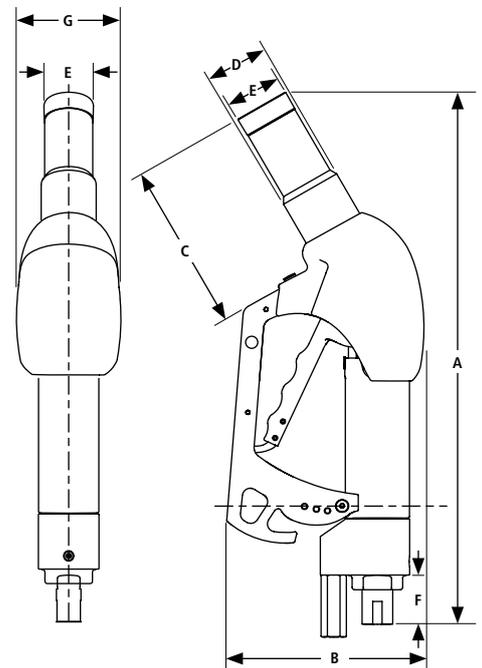
Min. Flow Rate: 1200 SCFM @ 3000 psid

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

MAWP: 4532 psi (312.5 Bar)

Pistol Grip Series Self-Service Nozzles (NGV1 Type 1)

OPW Pistol Grip Series Self-Service Nozzles are designed for high-flow public and private CNG fueling systems. Applications include quick-fill, self-service fueling of automobiles, light trucks, shuttle buses and vans.



Dimensions

	Pistol Grip Nozzle	
	in	mm
A	13.80	350.5
B	5.07	128.7
C	4.35	110.6
D	1.57	40.0
E	1.41	36.0
F	1.27	32.4
G	2.85	72.3

Insert nozzle onto receptacle.

Squeeze-and-click to FILL.

Squeeze-and-click to VENT.



Listings and Certifications





Ordering Specifications

EXAMPLES:

PG41P36 = #4 GUARD, #1 INLET HOSE CONFIGURATION; 3600 PSI (250 BAR) PG82P30 = #8 GUARD, #2 INLET HOSE CONFIGURATION; 3000 PSI (200 BAR)

Pistol Grip Nozzle	Guard Style	Inlet Hose Configuration	Service Pressure	Connection Fill	Connection Vent	Approximate Weight
PG	3	1	P36	3/4-16 UNF-2A, -8 37° JIC	-4 37° JIC	4.6 lbs.
	4	1	P36	3/4-16 UNF-2A, -8 37° JIC	-4 37° JIC	4.6 lbs.
	8	1	P36	3/4-16 UNF-2A, -8 37° JIC	-4 37° JIC	4.6 lbs.
	3	2	P36	9/16-18 UNF-2A, -6 37° JIC	-4 37° JIC	4.6 lbs.
	4	2	P36	9/16-18 UNF-2A, -6 37° JIC	-4 37° JIC	4.6 lbs.
	8	2	P36	9/16-18 UNF-2A, -6 37° JIC	-4 37° JIC	4.6 lbs.
PG	3	1	P30	3/4-16 UNF-2A, -8 37° JIC	-4 37° JIC	4.6 lbs.
	4	1	P30	3/4-16 UNF-2A, -8 37° JIC	-4 37° JIC	4.6 lbs.
	8	1	P30	3/4-16 UNF-2A, -8 37° JIC	-4 37° JIC	4.6 lbs.
	3	2	P30	9/16-18 UNF-2A, -6 37° JIC	-4 37° JIC	4.6 lbs.
	4	2	P30	9/16-18 UNF-2A, -6 37° JIC	-4 37° JIC	4.6 lbs.
	8	2	P30	9/16-18 UNF-2A, -6 37° JIC	-4 37° JIC	4.6 lbs.

*NOTE: Inlet filter and magnet in hand guard are standard.

Guard Style



Inlet Hose Adaptors

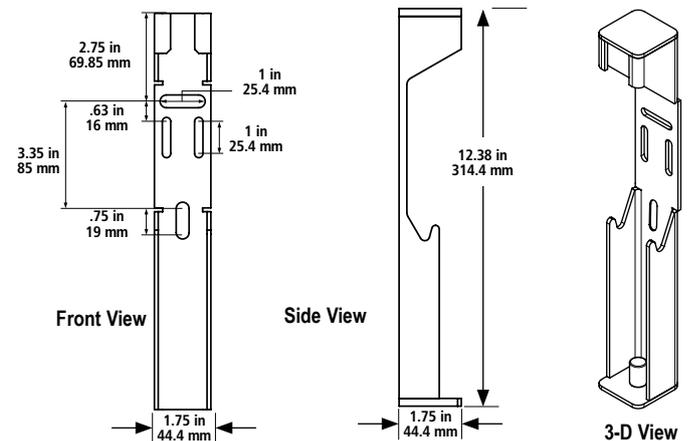
1	Compatible with most CNG hose configurations in USA using -8 fill and -4 vent
2	Compatible with most hose configurations using -6 fill and -4 vent

Parts

	P36 Yellow	P30 Blue
#3 Guard Assembly	210072	210240
#4 Guard Assembly	210055	210239
#8 Guard Assembly	210073	210242
Protective Sleeve	209018	209801
Top Cover	209802	209803
Inlet Filter		001065

Dispenser Mount

211290 Stainless steel, II gage compatible with 3, 4 and 8 guards shown above





Materials

Body: Brass

Jaws: Stainless steel

Seals: Specialty polymers and elastomers for NGV applications

CT1000P36S
Coupling End



CT1000P36S
Hose Connection End

Features

- **User-Friendly Single-Action Operation** - engage nozzle and receptacle with a 180° rotation of the handle. This secures nozzle jaws onto receptacle, activating a system of three internal valves that regulate fueling. The nozzle will not dispense gas until securely engaged onto an appropriate receptacle. When fueling is complete, rotate the handle to the disconnect position to automatically stop the flow of gas into the vehicle, vent the trapped gas and release the nozzle from the receptacle. The 1000 Series nozzles connect directly to the hose, with no need for a three-way valve. Designed for public or private self-service applications, no attendant is needed.
- **High-Flow/Fast-Fill Capability** - provides quick fueling of medium storage vehicles. Internal seals are designed for fast-fill NGV fueling.
- **Directed Vent (CT1000)** - captures the gas vented at disconnect and directs it out of the nozzle via a 1/4" stainless steel vent tube (requires -4 compression adaptor), which can be piped to a remote venting location or back to the upstream side of the compressor. Capturing vent gas is environmentally desirable by agencies such as the EPA and provides an added measure of safety by minimizing the amount of gas present at the filling site. It also reduces vent noise and eliminates escaped gas smell.

- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of the high-pressure gas connections of NGV fueling. Forces at the contact point are distributed over the entire surface area of the receptacle.
- **Ergonomic Design** - one simple and convenient motion ensures connection and dispensing by all users. Insulated jacket protects operator's hand.
- **Durable Construction** - heavy-duty brass and stainless steel construction provides corrosion resistance in the harsh refueling environment.
- **Meets NGV1 Fueling Standard** - can be used to fuel any vehicle with an NGV1 profile receptacle. (See pages 4 - 5)
- **Tamper Resistant** - specially designed cam system actuates the front and rear module. Tampering with the valve results in immediate dispensing shut-off.
- **Individually Leak Tested and Inspected with Traceable Serial Number**

Specifications:

Min. Flow Rate: 1200 SCFM @ 3000 psid

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Cv: 0.48

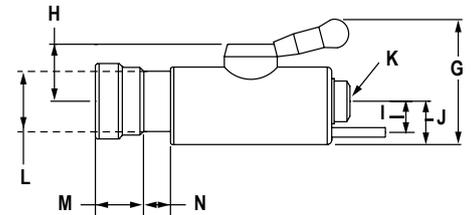
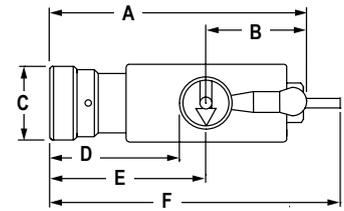
MAWP: 4532 psi (312.5 Bar)

Ordering Specifications

Product #	Inlet Thread Size	Service Pressure		Weight	
CT1000SS	SAE - 6, 9/16" - 18 UNF	3000 psi	200 bar	3.61 lbs.	1.63 kg
*CT1000LS	SAE - 6, 9/16" - 18 UNF	3000 psi	200 bar	3.66 lbs.	1.66 kg
Same as CT1000SS. Adds a Guide Ring					
CT1000P36S	SAE - 6, 9/16" - 18 UNF	3600 psi	250 bar	3.65 lbs.	1.65 kg

CT1000 Series Self-Service Nozzles (NGV1 Type 1)

OPW 1000 Series Self-Service Nozzles are designed for high-flow public and private CNG fueling systems. Applications include quick-fill, self-service fueling of automobiles, light trucks, shuttle buses and vans.



Dimensions

	CT1000S		CT1000P36 / CT1000L	
	in	mm	in	mm
A	6.69	167.8	7.32	185.8
B	2.63	65.4	2.63	66.4
C	1.94	48.9	1.94	48.9
D	3.37	85.1	4.0	102.1
E	4.06	102.4	4.69	119.4
F	7.5	191.0	8.19	208.0
G	3.25	83.1	3.25	83.1
H	1.5	37.9	1.5	37.9
I	1.37	20.7	0.81	20.7
J	1.13	28.8	1.13	28.8
K	Straight Thread O-Ring Boss Port SAE-6 J1926 (9/16" - 18 UNF-2B)			
L	1.58	40	1.58	40
M	1.24	31.4	2.01	51.2
N	0.75	19	0.72	18.4

Listings and Certifications



**Rebuild Service and
In-The-Field Repair Kits Available
see page 6 for Ordering Details.**



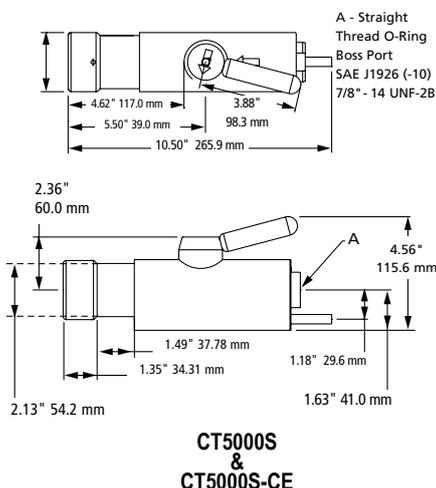
CT5000 Series Bus/Heavy-Duty Truck Nozzles

OPW 5000 Series nozzles are designed for extremely high-flow public and private CNG fueling systems. Applications include quick-fill, self-service fueling of transit buses and large trucks.

Ordering Specifications

Product #	Inlet Thread Size	Service Pressure	Weight
CT5000S (directed vent)	SAE - 10, 7/8" - 14 UNF	3625 psi (250 bar)	3,98 kg (8,77 lb)
CT5000S-CE (for EU & ISO- 14469-2 Markets)	SAE - 10, 7/8" - 14 UNF	3625 psi (250 bar)	3,98 kg (8,77 lb)

Connects to CL50 Series heavy-duty receptacles



Materials

Body: Brass

Jaws: Stainless steel

Internal Components: Stainless steel

Seals: Specially formulated polymers and elastomers specific to high-pressure NGV applications.



Features

- **User-Friendly Single-Action Operation** - entire fueling operation is initiated by simply engaging nozzle and receptacle with a single 180° rotation of the handle. This automatically secures the nozzle jaws onto the receptacle and activates a system of three internal valves that regulate fueling. The nozzle will not dispense gas until securely engaged onto an appropriate receptacle. When fueling is completed, rotation of the handle to the disconnect position automatically stops the flow of gas into the nozzle, vents the trapped gas and releases the nozzle from the receptacle. The 5000 Series nozzles connect directly to the hose, eliminating the need for a three-way valve. They are designed for public or private self-service applications, eliminating the need for a trained attendant.
- **High-Flow/Fast-Fill Capability** - to provide quick fueling of large storage vehicles. Internal seals are specially designed to meet the demands of fast-fill NGV fueling.
- **Directed Vent** - directs the gas vented at disconnect and directs it out of the nozzle via a 3/8" stainless steel tubing connection (requires -6 compression adaptor), which can be piped to a remote venting location or back to the upstream side of the compressor. Directing the vent gas is environmentally desirable and will provide an added measure of safety by minimizing the amount of gas present at the filling site. It also reduces vent noise and escaped gas smell.
- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of the high-pressure gas connections of NGV fueling. Forces at the contact point are distributed over the entire surface area of the receptacle.
- **Ergonomic Design** - one simple and convenient motion ensures connection and dispensing by all users. Insulated jacket provides thermal protection for operator's hand.
- **Durable Construction** - brass and stainless steel construction provides excellent corrosion resistance in the harsh refueling environment.
- **Tamper Resistant** - specially designed cam system actuates the front and rear valve module. Any tampering with the valve will result in an immediate shut-off of the dispensing process.
- **Individually Leak Tested and Inspected with Traceable Serial Numbers**

Specifications:

Min. Flow Rate: 5000 SCFM @ 3000 psid
 Temperature Range: -40° F to 185° F
 (-40° C to 85° C)
 Cv: 2.75
 MAWP: 4532 psi (312.5 Bar)

**Rebuild Service and
In-The-Field Repair Kits Available
see page 6 for Ordering Details.**

Listings and Certifications



CE 0036

Agency Listings - ASME Pressure Vessel Registered, Railroad Commission of Texas, Special Application of German Pressure Vessel Available at Additional TUV cost.



Materials

Body: Stainless steel; acetal

Jaws: Stainless steel

Seals: Specially formulated polymers and elastomers specific to high-pressure NGV applications.

CC6000
Coupling End



CC6000
Hose Connection End



Features

- **High-Flow/Super Fast Fill Capability** - OPW's fastest flowing nozzle. This nozzle will provide quick fueling of large storage vehicles. Internal seals are specially designed to meet the demands of fast-fill NGV fueling.
- **User-Friendly Push-On/Pull-Off Operation** - for smooth, simple engaging and disengaging of nozzle and receptacle without the added step of pulling back a collar. The CC6000 is designed to remain securely connected to the receptacle until the nozzle is depressurized after fueling is complete.
- **Type** - designed as a High-Flow Type 2 nozzle used in conjunction with CL50 receptacles.
- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of the high-pressure gas connections of NGV fueling. Forces at the contact point are distributed over the entire surface area of the receptacle, significantly reducing nozzle wear.
- **Ergonomic Design** - has a comfortable "tool-grip" like all other OPW Type 2 nozzles.
- **Durable Construction** - heavy-duty stainless steel construction provides excellent corrosion resistance in the harsh refueling environment.
- **Individually Leak Tested And Inspected With Traceable Serial Numbers**

Specifications:

Min. Flow Rate: 5000 SCFM @ 3000 psid

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Cv: 6.00

MAWP: 4532 psi (312.5 Bar)

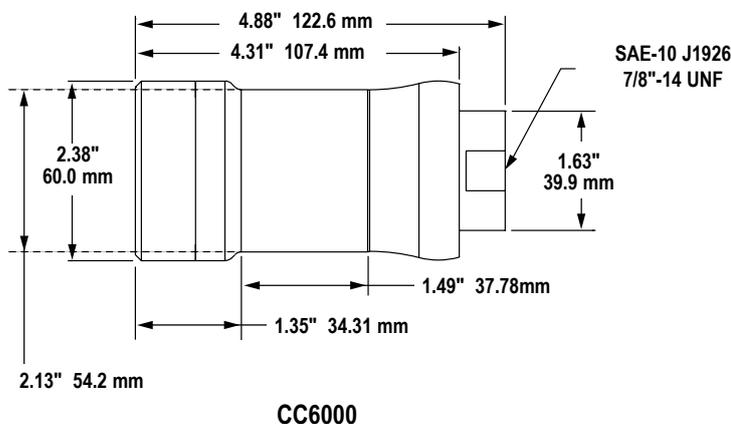
CC6000 Series Bus/Heavy-Duty Truck Nozzles

OPW 6000 Series nozzles are designed for extremely high-flow public and private CNG fueling systems when connected to OPW CL50 receptacles. Applications include quick-fill, self-service fueling of transit buses and large trucks. This Type 2 nozzle must be used with some type of secondary flow control valve that either vents down only the nozzle or the nozzle and hose.

Ordering Specifications

Product #	Inlet		Weight
	Thread Size	Service Pressure	
CC6000	SAE-10 J1926, 7/8" - 14 UNF	3600 psi (250 bar)	1,33 kg (2,94 lb)

Connects to CL50 Series Heavy-Duty Receptacles



Listings and
Certifications



CE 0036



CNG Fueling Products And Accessories

OPW in-line breakaways are installed on fuel dispensing hoses between the nozzle and dispenser and will separate when subjected to a designated pull force, such as in the event of a drive-away. The dual valves seat automatically upon separation to stop the flow of gas while protecting the dispensing equipment from catastrophic damage. Defueling nozzles are designed to safely depressurize vehicles and can be used to transfer fuel from one vehicle to another. The fueling hoses are specially designed for dispensing compressed natural gas.

NEW



Fill-Line Breakaway (FLB-1000) Standard Duty

OPW has optimized the in-line breakaway for use in automotive NGV refueling applications. This unit will function consistently, independent of the inlet pressure.

NEW



Fill-Line Breakaway (FLB-5000) – Heavy-Duty Truck/Bus

OPW has optimized the in-line breakaway for use in heavy-duty truck and bus NGV refueling applications. This unit will function consistently, independent of the inlet pressure.



Vent Line Breakaway (NGVLB)

The OPW NGVLB is an in-line breakaway that fits into the nozzle vent line. This new pressure balanced NGVLB unit will function consistently when used in conjunction with OPW high pressure in-line breakaways in the event of a drive-away.



In-Line Breakaway (ILB-1)

Designed for medium flow and automotive NGV and hydrogen refueling applications. This unit will function consistently, independent of the inlet pressure.



Hose And Hose Assemblies

OPW CNG hose assemblies are designed of electrically conductive polymer core tubing for working pressures of 3600 to 5000 psi. All hose assemblies conform to NFPA 52 and AGA/CGA, ANSI NGV 4.2



BDN Vehicle Defueling Nozzle

OPW has developed this tool to safely depressurize vehicles. This valve can also be used to transfer fuel from one vehicle to another in the event of a breakdown on the side of the road, or be used in areas where no refueling station is available.

In-Line Breakaway (ILB-5) – Heavy-Duty Truck/Bus

Designed for high flow and heavy-duty truck and bus NGV and hydrogen refueling applications. This unit will function consistently, independent of the inlet pressure.

CNG Hose Retractor

OPW CNG Hose Retractors keep excess hose off the ground and out of the way, prolonging hose life and reducing potential hazards.



Materials

Body: Stainless steel

Internal Components: Stainless steel

Seals: Specially formulated polyurethane seals to withstand high pressure NGV applications



FLB-1000

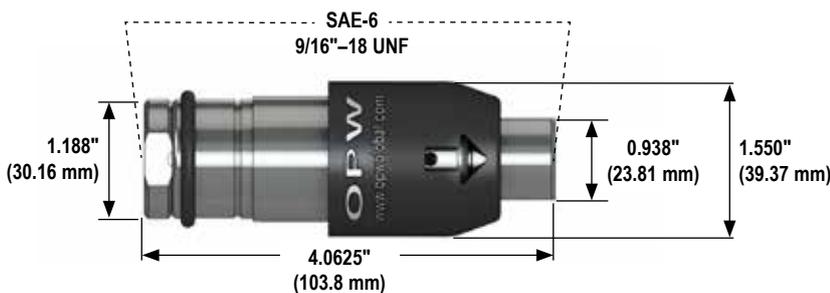
Features

- **High-Flow/Fast Fill Capacity** - This NGV1 breakaway will provide quick fueling of large vehicles.
- **Durable, Corrosion-Resistant Construction** - stainless steel construction provides improved durability and corrosion resistance in harsh environments.
- **Reconnectable Design** - allows the component to be reused, reducing total cost of ownership.
- **Innovative Valve System** - the sealing system in this breakaway minimizes the amount of vent gas released during a drive-away incident.
- **Reduced Size and Weight** - to allow for more applications where size may be a concern.
- **Easy Installation** - the in-line breakaway has SAE-6 O-ring fittings for easy installation in line between the dispenser and nozzle.
- **Disconnection Force** - 120 +/- 30 lbs. (534 +/- 134 N)
- **100% Leak and Breakaway Tested, with Traceable Serial Numbers**

Ordering Specifications

Product No.	Inlet Thread Size	Outlet Thread Size	Service Pressure		Weight
FLB-5000	SAE - 6, 9/16" - 18 UNF (female)	SAE - 6, 9/16" - 18 UNF (female)	3600 psi	250 bar	0,41 kg (0,091 lb)
CNGBREAKKIT-5000 (includes FLB-1000 and NGVLB Breakaway)	FLB-1000 SAE - 6, 9/16" - 18 UNF (female)	FLB-1000 SAE - 6, 9/16" - 18 UNF (female)	3600 psi	250 bar	0,51 kg (1,13 lb)
	NGVLB SAE - 6, 9/16" - 18 UNF	NGVLB SAE - 6, 9/16" - 18 UNF	3600 psi	250 bar	

FLB-1000 Dimensions



Fill-Line Breakaway (FLB-1000)

OPW has optimized the in-line breakaway for use in automotive NGV refueling applications. This unit will function consistently, independent of the inlet pressure.

Specifications:

Max Flow Rate: 3700 SCFM @ 3600 psid

Temperature Range: -40° F to 185° F (-40° C to 85° C)

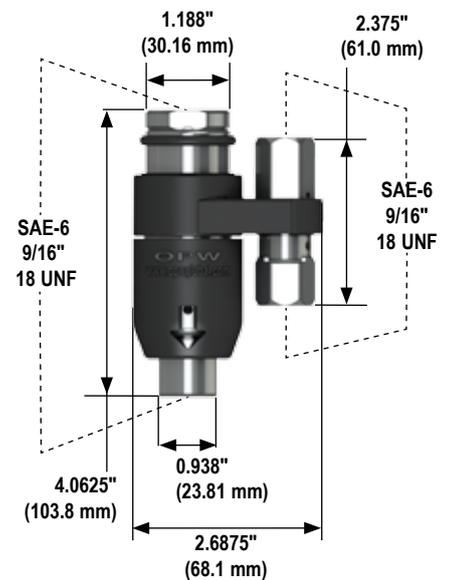
Cv: 1.85

MAWP: 4532 psi (312,5 Bar)



Fill-Line Breakaway Kit

CNGBREAKKIT-1000 (Includes NGVLB Breakaway)



Rebuild Service and In-The-Field Repair Kits Available see page 6 for Ordering Details.

Listings and Certifications



CE 0036



In-Line Breakaway (FLB-5000) - Heavy-Duty Truck/Bus

OPW has optimized the in-line breakaway for use in heavy-duty truck and bus NGV refueling applications. This unit will function consistently, independent of the inlet pressure.

Specifications:

Max Flow Rate: 7500 SCFM @ 3600 psid

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

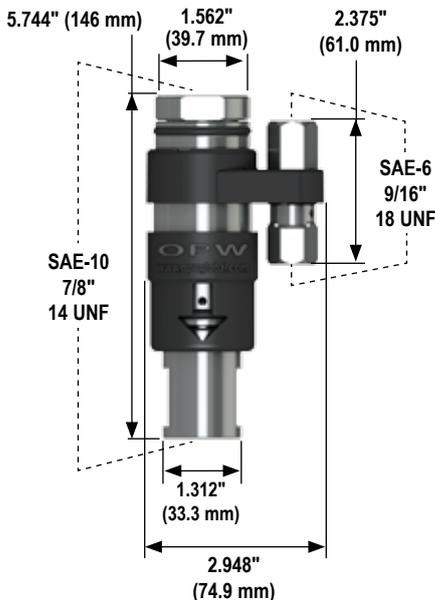
Cv: 3.91

MAWP: 4532 psi (312.5 Bar)



Fill-Line Breakaway Kit

CNGBREAKKIT-5000
(Includes NGVLB Breakaway)



Rebuild Service and In-The-Field Repair Kits Available see page 6 for Ordering Details.

Materials

Body: Stainless steel

Internal Components: Stainless steel

Seals: Specially formulated polyurethane seals to withstand high pressure NGV applications.



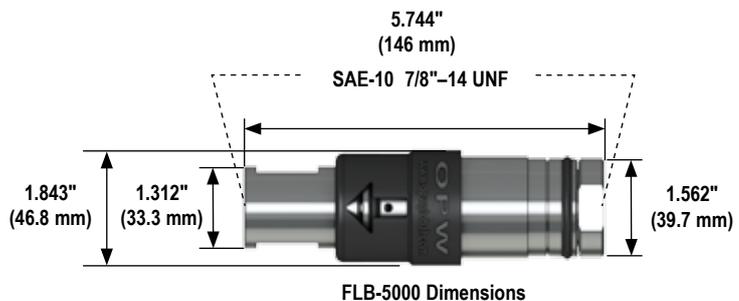
FLB-5000

Features

- **High-Flow/Fast Fill Capacity** - this is OPW's fastest flowing breakaway. This breakaway will provide quick fueling of large vehicles.
- **Durable, Corrosion-Resistant Construction** - stainless steel construction provide improved durability and corrosion resistance in harsh environments.
- **Reconnectable Design** - allows the component to be reused, reducing total cost of ownership.
- **Innovative Valve System** - the sealing system in this breakaway minimizes the amount of vent gas released during a drive-away incident.
- **Reduced Size and Weight** - to allow for more applications where size may be a concern.
- **Easy Installation** - the in-line breakaway has SAE-10 O-ring fittings for easy installation in-line between the dispenser and nozzle.
- **Disconnection Force** - 120 +/- 30 lbs. (534 +/- 134 N).
- **100% Leak and Breakaway Tested, with Traceable Serial Numbers**

Ordering Specifications

Product No.	Inlet Thread Size	Outlet Thread Size	Service Pressure	Weight
FLB-5000	SAE - 10, 7/8" - 14 UNF (female)	SAE - 10, 7/8" - 14 UNF (female)	3600 psi 250 bar	0,907 kg (2 lb)
CNGBREAKKIT-5000 (includes FLB-5000 and NGVLB Breakaway)	FLB-5000 SAE - 10, 7/8" - 14 UNF (female)	FLB-5000 SAE - 10, 7/8" - 14 UNF (female)	3600 psi 250 bar	1 kg (2,22 lb)
	NGVLB SAE - 6, 9/16" - 18 UNF	NGVLB SAE - 6, 9/16" - 18 UNF	3600 psi 250 bar	



Listings and Certifications



CE 0036



Materials

- Body:** Stainless steel
- Internal Components:** Stainless steel
- Seals:** Specially formulated seals, specific to high-pressure NGV applications



NGVLB

Features

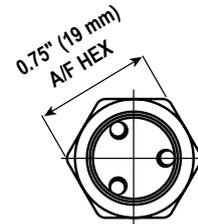
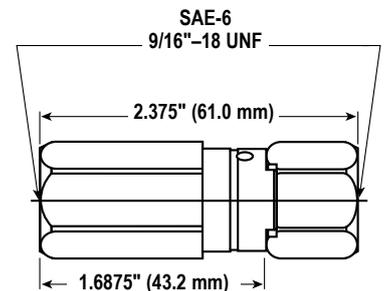
- **Durability** - Stainless steel construction provides improved performance, durability and corrosion resistance in harsh environments.
 - **Reconnectable** - Allows the component to be reused, reducing maintenance cost.
 - **No tools required for reconnection** (12 lbs./53 N reconnection force).
 - **Pressure Balanced** - Performance stability, due to the pressure balance design, eliminates nuisance separation due to pressure surges in the vent line
 - **Passive design** - allows pressure to freely move through the vent line.
 - **Disconnection Force** - 40 +/- 15 lbs. (178 +/- 67 N)
- **100% Leak and Breakaway Tested, with Traceable Serial Numbers**

Specifications:

- Pressure balanced to 18129 psi (1250 bar)
- Temperature Range: -40° F to 185° F (-40° C to 85° C)
- Cv: 0.24
- 1000 SCFM @ 3600 psi (250 bar)
- MAWP: 4532 psi (312.5 Bar)

OPW Vent Line Breakaway (NGVLB)

The OPW NGVLB is an in-line breakaway that fits into the nozzle vent line. This new pressure balanced NGVLB unit will function consistently when used in conjunction with OPW high-pressure in-line breakaways.



Ordering Specifications

Product No.	Inlet Thread Size	Outlet Thread Size	Service Pressure	
NGVLB	SAE - 6, 9/16" - 18 UNF	SAE - 6, 9/16" - 18 UNF	3,600 psi	250 bar

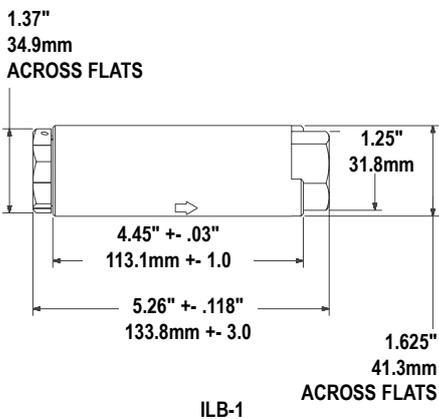
Listings and Certifications





In-Line Breakaway (ILB-1 & ILB-H)

Designed for medium flow and automotive NGV and hydrogen refueling applications. This unit will function consistently, independent of the inlet pressure.



Materials

- Body:** Stainless steel
- Internal Components:** Stainless steel
- Seals:** Specially formulated polyurethane seals to withstand high pressure NGV applications.



Features

- **High-Flow** - the flow path has been matched to provide ample flow for all NGV-1 Type 1 and Type 2 nozzles.
- **Durable, Corrosion-Resistant Construction** - stainless steel construction provide improved durability and corrosion resistance in harsh environments.
- **Reconnectable Design** - allows the component to be reused, reducing total cost of ownership.
- **Innovative Valve System** - the sealing system in this breakaway minimizes the amount of vent gas released during a drive-away incident.
- **Reduced Size and Weight** - to allow for more applications where size may be a concern.
- **Easy Installation** - the in-line breakaway has SAE-6 O-ring fittings for easy installation in-line between the dispenser and nozzle.
- **Disconnection Force** - 150 lbs. (668 N).
- **100% Leak and Breakaway Tested, with Traceable Serial Numbers**

Specifications:

Min. Flow Rate: 2000 SCFM @ 3000 psid
Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Cv: 1.17
MAWP (ILB-1): 5438 psi (375 Bar)
MAWP (ILB-H): 6345 psi (437 Bar)

Ordering Specifications

Product #	Inlet Thread Size	Outlet Thread Size	Service Pressure		Weight.
ILB-1	SAE - 6, 9/16" - 18 UNF (female)	SAE - 6, 9/16" - 18 UNF (female)	3600 psi	250 bar	2.3 lb. - 1.04 kg
ILB-H	SAE - 6, 9/16" - 18 UNF (female)	SAE - 6, 9/16" - 18 UNF (female)	5076 psi	350 bar	2.3 lb. - 1.04 kg

Recommended to be used with the CC200, CC300, CC600, CT1000 and Hydrogen Series Nozzles

Listings and Certifications





Materials

Body: Stainless steel

Internal Components: Stainless steel

Seals: Specially formulated seals, specific to high-pressure NGV applications



ILB-5

Features

- **High-Flow/Super Fast Fill Capacity** - This breakaway will provide quick fueling of large storage vehicles. Internal seals are specifically designed to meet the demands of fast-fill NGV fueling..
- **Durable, Corrosion-Resistant Construction** - stainless steel construction provide improved durability and corrosion resistance in harsh environments.
- **Reconnectable Design** - allows the component to be reused, reducing total cost of ownership.
- **Innovative Valve System** - the sealing system in this breakaway minimizes the amount of vent gas released during a drive-away incident.
- **Reduced Size and Weight** - to allow for more applications where size may be a concern.
- **Easy Installation** - the in-line breakaway has SAE-10 O-ring fittings for easy installation in-line between the dispenser and nozzle.

- **Disconnection Force** - 150 lbs. (668 N).
- **100% Leak and Breakaway Tested, with Traceable Serial Numbers**

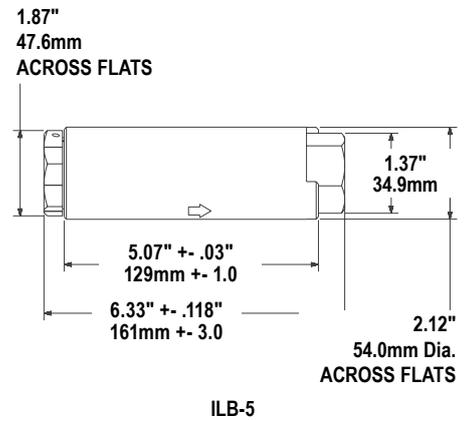
Specifications:

Min. Flow Rate: 5500 SCFM @ 3000 psid
Temperature Range: -40° F to 185° F (-40° C to 85° C)

Cv: 3.6
MAWP: 5438 psi (375 Bar)

In-Line Breakaway (ILB-5) - Heavy-Duty Truck/Bus

Designed for high flow and heavy-duty truck and bus NGV and hydrogen refueling applications. This unit will function consistently, independent of the inlet pressure.



ILB-5

Ordering Specifications

Product #	Inlet Thread Size	Outlet Thread Size	Service Pressure	Weight.
ILB-5	SAE - 10, 7/8" - 14 UNF (female)	SAE - 10, 7/8" - 14 UNF (female)	3600 psi 250 bar	5 lb. - 2.26 kg

Recommended to be used with the CT5000 and CC6000 Series Nozzles.

Listings and Certifications





Hose and Hose Assemblies

OPW CNG Hose Assemblies are designed for dispensing compressed natural gas at working pressures to 5000 psi. Constructed of high-strength conductive polymer core tubing to dissipate static charge, all OPW hose assemblies conform to NFPA 52 and AGA/CGA, ANSI NGV 4.2.

Features

- **Quality Construction** - high-strength, reinforced synthetic fiber braid, electrically conductive polymer core tubing dissipates static electrical buildup while protecting the hose from wear and tear with an abrasion-resistant polymer cover.
- **Quality Tested** - all hose assemblies are leak-proof tested and conductively tested. All hose assemblies conform to NFPA 52 and AGA/CGA, ANSI NGV 4.2.
- **Available In Standard NGV-1 and Heavy-Duty Dual Hose Sizes**

Materials

Fittings: Plated steel/
316 stainless steel



- Hose Assemblies Complete With Filling Line, Vent Line Breakaways, and Nozzles -

Dispenser thread-ready and fully tested kits available for all Type 1, Type 2 and high-flow nozzle applications.

- **Custom Lengths, Fittings and Sizes Available** - Please forward specific design requirements to OPW.

Specifications:

Temperature Range: -40° F to 185° F (-40° C to 85° C), MAWP: 5000 psi (345 bar)

ASSEMBLY DEPICTION ONLY - For specific design requirements, contact OPW



- 1 Type 1 or Type 2 Nozzle (CT1000, or 3WV Series)
- 2 Twin hose assembly - fill and vent

- 3 Fill line breakaway
- 4 1/4" or 3/8" Filling hose

- 5 1/4" Venting hose
- 6 Vent line breakaway (NGVLB)



- 1 Type 1 Nozzle (CT5000)
- 2 Twin hose assembly - fill and vent

- 3 Fill line breakaway
- 4 1/2" Filling hose

- 5 1/4" Venting hose
- 6 Vent line breakaway (NGVLB)



Ordering Specifications: Contact OPW for Alternate Configurations

NOTE: All hoses have a Maximum Allowable Working Pressure of 5000 PSI / 345 BAR

Product # Hoses	Item Description: Replacement hose only. Fittings NOT included	Dispenser Connection Fill Hose	Dispenser Connection Vent Hose	Hose Cross Reference
42034	2' WHIP HOSE (3/8" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGHOSE-11, LDCNGHOSE-11W
42035	10' MAIN HOSE (3/8" FILL, 1/4" VENT)	N/A	N/A	CNGHOSE122, LDCNGHOSE-20TF
204356	2' WHIP HOSE (1/2" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	HDCNGHOSE-11
204357	11' MAIN HOSE (1/2" FILL, 1/4" VENT)	N/A	N/A	CNGHOSE5
207173	8.3' MAIN HOSE (3/8" FILL, 1/4" VENT)	N/A	N/A	LDCNGHOSE-11, LDCNGHOSE-11FLB
207174	8.3' MAIN HOSE (1/2" FILL, 1/4" VENT)	N/A	N/A	HDCNGHOSE-11, HDCNGHOSE-11FLB
207786	13' MAIN HOSE (3/8" FILL, 1/4" VENT)	N/A	N/A	LDCNGHOSE-15, LDCNHOSE-15A
207880	2' WHIP HOSE (1/4" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGHOSE-14, TFCNGHOSE-20, TFCNGKIT-14C36, TFCNGKIT-20B36
207890	18' MAIN HOSE (1/4" FILL, 1/4" VENT)	N/A	N/A	TFCNGHOSE-20, TFCNGKIT-20B36
207953	17" NOZZLE FLEX HOSE (-6 HOSE, 1/4 NPT TO #6 SAE O-RING)	N/A	N/A	3WV-44D, 3WV-44DP30, 3WV-DP36, 3WV-46D, 3WV-46DP30, 3WV-46DP36, TFCNGKIT-20D36, XFLDCNGKIT-50
208122	8.3' MAIN HOSE (3/8" FILL, 1/4" VENT)	N/A	N/A	LDCNGHOSE-11W, LDCNGKIT-11W
208408	2' WHIP HOSE (3/8" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGHOSE-15A
208523	12' MAIN HOSE (1/4" FILL, 1/4" VENT)	N/A	N/A	TFCNGKIT-20D36, TFCNGHOSE-14, TFCNGHOSE-12-8, TFCNGKIT-14C36
208989	2' WHIP HOSE (3/4" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	XHDCNGHOSE-10
208990	8.3' MAIN HOSE (3/4" FILL, 1/4" VENT)	N/A	N/A	XHDCNGHOSE-10
209413	10' (3/8") CNG HOSE - Breakaway to Defuel Panel - For Defuel Panel Kit	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	N/A	LDCNGDPK-12
209414	2' (3/8") CNG HOSE - BDN to Break-away Hose for Defuel Panel Kit	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	N/A	LDCNGDPK-12
209435	2' WHIP HOSE (1/2" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	CNGHOSE5, HDCNGHOSE-11FLB, HDCNGKIT-11FLB
209443	2' WHIP HOSE (3/8" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	CNGHOSE122, LDCNGHOSE-15, LDCNGHOSE-11FLB, LDCNGKIT-11FLB, LDCNGKIT-12
209624	8' WHIP HOSE (1/4" FILL, 1/4" VENT)	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGHOSE-12-8, TFCNGKIT-HOSE-12-8, TFCNGKIT-20D36
209626	25' CNG HOSE (3/8" FILL, 1/4" VENT) - For 50' CNG Transfer Kit	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	XFLDCNGKIT-50
209627	25' CNG HOSE (3/8" FILL, 1/4" VENT) - For 50' CNG Transfer Kit	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	XFLDCNGKIT-50



Ordering Specifications: Contact OPW for Alternate Configurations

NOTE: All hoses have a Maximum Allowable Working Pressure of 5000 PSI / 345 BAR

Product # Hose Sets	Item Description: Includes Fittings and Labor to Assemble	Dispenser Connection Fill Hose	Dispenser Connection Vent Hose	Hose Cross Reference
CNGHOSE122	2' WHIP HOSE (3/8" FILL, 1/4" VENT) plus 10' MAIN HOSE (3/8" FILL, 1/4" VENT) (209443 & 42035 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGKIT-12, 209443 & 42035
CNGHOSE5	2' WHIP HOSE (1/2" FILL, 1/4" VENT) plus 11' MAIN HOSE (1/2" FILL, 1/4" VENT) (209435 & 204357 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	209435 & 204357
HDCNGHOSE-11	2' WHIP HOSE (1/2" FILL, 1/4" VENT) plus 8.3' MAIN HOSE (1/2" FILL, 1/4" VENT) (204356 & 207174 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	HDCNGKIT-11, 204356 & 207174
HDCNGHOSE-11FLB	2' WHIP HOSE (1/2" FILL, 1/4" VENT) plus 8.3' MAIN HOSE (1/2" FILL, 1/4" VENT) (209435 & 207174 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	HDCNGKIT-11FLB, 209435 & 207174
LDCNGHOSE-11	2' WHIP HOSE (3/8" FILL, 1/4" VENT) plus 8.3' MAIN HOSE (3/8" FILL, 1/4" VENT) (42034 & 207173 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGKIT-11, 42034 & 207173
LDCNGHOSE-11FLB	2' WHIP HOSE (3/8" FILL, 1/4" VENT) plus 8.3' MAIN HOSE (3/8" FILL, 1/4" VENT) (209443 & 207173 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGKIT-11FLB, 209443 & 207173
LDCNGHOSE-11W	2' WHIP HOSE (3/8" FILL, 1/4" VENT) plus 8.3' MAIN HOSE (3/8" FILL, 1/4" VENT) (42034 & 208122 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGKIT-11W, 42034 & 208122
LDCNGHOSE-15	2' WHIP HOSE (3/8" FILL, 1/4" VENT) plus 13' MAIN HOSE (3/8" FILL, 1/4" VENT) (209443 & 207786 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	209443 & 207786
LDCNGHOSE-15A	2' WHIP HOSE (3/8" FILL, 1/4" VENT) plus 13' MAIN HOSE (3/8" FILL, 1/4" VENT) (208408 & 207786 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGKIT-15A, 208408 & 207786
LDCNGHOSE-20TF	10' WHIP HOSE (3/8" FILL, 1/4" VENT) plus 10' MAIN HOSE (3/8" FILL, 1/4" VENT) (42035 & 42035 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGKIT-20B36 & 42035
TFCNGHOSE-12-8	8' WHIP HOSE (1/4" FILL, 1/4" VENT) plus 12' MAIN HOSE (1/4" FILL, 1/4" VENT) (209624 & 208523 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGKIT-20D36, 209624 & 208523
TFCNGHOSE-14	2' WHIP HOSE (1/4" FILL, 1/4" VENT) plus 12' MAIN HOSE (1/4" FILL, 1/4" VENT) (207880 & 208523 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGKIT-14C36, 207880 & 208523
TFCNGHOSE-20	2' WHIP HOSE (1/4" FILL, 1/4" VENT) plus 18' MAIN HOSE (1/4" FILL, 1/4" VENT) (207880 & 207890 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGKIT-20B36, 207880 & 207890
XHDCNGHOSE-10	2' WHIP HOSE (3/4" FILL, 1/4" VENT) plus 8.3' MAIN HOSE (3/4" FILL, 1/4" VENT) (208989 & 208990 plus adaptors)	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	XHDCNGKIT-10, 208989 & 208990



Ordering Specifications: Contact OPW for Alternate Configurations

NOTE: All hoses have a Maximum Allowable Working Pressure of 5000 PSI / 345 BAR

Product # Hose-Break-aways-Nozzle Assemblies	Item Description: Includes Fittings, and OPW Pressure Testing of Complete Assembly	Dispenser Connection Fill Hose	Dispenser Connection Vent Hose	Hose Cross Reference
HDCNGKIT-11	2' WHIP HOSE (1/2" FILL, 1/4" VENT), 8.3' MAIN HOSE (1/2" FILL, 1/4" VENT), ILB-5, NGVLB, CT5000S	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	HDCNGHOSE-11
HDCNGKIT-11FLB	2' WHIP HOSE (1/2" FILL, 1/4" VENT), 8.3' MAIN HOSE (1/2" FILL, 1/4" VENT), CNGBREAKKIT-5000, CT5000S	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	HDCNGHOSE-11FLB
LDCNGDPK-12	BDN, 2' MAIN HOSE (3/8"), FLB-1000, 10' WHIP HOSE (3/8") to Defuel Panel	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	N/A	209414 & 209413
LDCNGKIT-11	2' WHIP HOSE (3/8" FILL, 1/4" VENT), 8.3' MAIN HOSE (3/8" FILL, 1/4" VENT), ILB-1, NGVLB, CT1000P36S	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGHOSE-11
LDCNGKIT-11FLB	2' WHIP HOSE (3/8" FILL, 1/4" VENT), 8.3' MAIN HOSE (3/8" FILL, 1/4" VENT), CNGBREAKKIT-1000, CT1000P36S	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGHOSE-11FLB
LDCNGKIT-11W	2' WHIP HOSE (3/8" FILL, 1/4" VENT), 8.3' MAIN HOSE (3/8" FILL, 1/4" VENT), CNGBREAKKIT-1000 (nozzle not included and no hose offset at nozzle connection)	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGHOSE-11W
LDCNGKIT-12	2' WHIP HOSE (3/8" FILL, 1/4" VENT), 10' MAIN HOSE (3/8" FILL, 1/4" VENT), CNGBREAKKIT-1000, CT1000P36S	SAE (JIC) 37 DEGREE SWIVEL 3/4" -16 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	CNGHOSE122
LDCNGKIT-15A	2' WHIP HOSE (3/8" FILL, 1/4" VENT), 13' MAIN HOSE (3/8" FILL, 1/4" VENT), CNGBREAKKIT-1000, CT1000SS	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGHOSE-15A
LDCNGKIT-20B36	10' WHIP HOSE (3/8" INLET, 1/4" VENT), 10' MAIN HOSE (3/8" INLET, 1/4" VENT), CNGBREAKKIT-1000, 3WV-46BP36	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	LDCNGHOSE-20TF
TFCNGKIT-14C36	2' WHIP HOSE (1/4" FILL, 1/4" VENT), 12' MAIN HOSE (1/4" FILL, 1/4" VENT), CNGBREAKKIT-1000, 3WV-44CP36	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGHOSE-14
TFCNGKIT-20B36	2' WHIP HOSE (1/4" FILL, 1/4" VENT), 18' MAIN HOSE (1/4" FILL, 1/4" VENT), CNGBREAKKIT-1000, 3WV-44BP36	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGHOSE-20
TFCNGKIT-20D36	8' WHIP HOSE (1/4" FILL, 1/4" VENT), 12' MAIN HOSE (1/4" FILL, 1/4" VENT), CNGBREAKKIT-1000, 3WV-44DP36	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 7/16" -20 FEMALE THREAD	TFCNGHOSE-12-8
XFLDCNGKIT-50	BDN + 3WV-46D, 25' HOSE (3/8" FILL, 1/4" VENT) 209627, CNGBREAKKIT-1000, 25' HOSE (3/8" FILL, 1/4" VENT) 209626, CT1000P36S	N/A	N/A	209627, 209626 & 207953
XHDCNGKIT-10	2' WHIP HOSE (3/4" FILL, 1/4" VENT), 8.3' MAIN HOSE (3/4" FILL, 1/4" VENT), CNGBREAKKIT-5000, CT5000S	SAE (JIC) 37 DEGREE SWIVEL 7/8" -14 FEMALE THREAD	SAE (JIC) 37 DEGREE SWIVEL 9/16" -18 FEMALE THREAD	XHDCNGHOSE-10

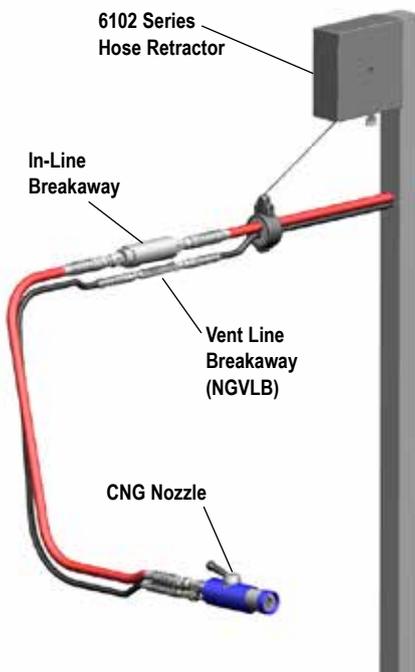


CNG Hose Retractor

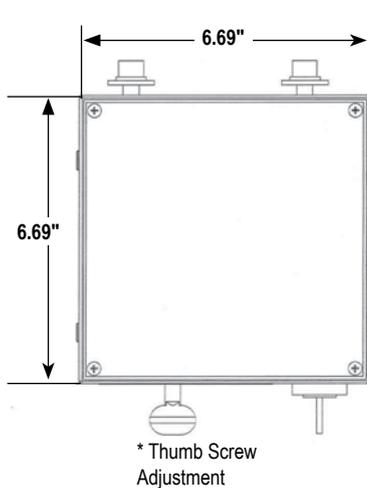
OPW CNG Hose Retractors keep excess hose off the ground and out of the way, prolonging hose life and reducing potential hazards.

CNG Hose Retractor Sample Configuration

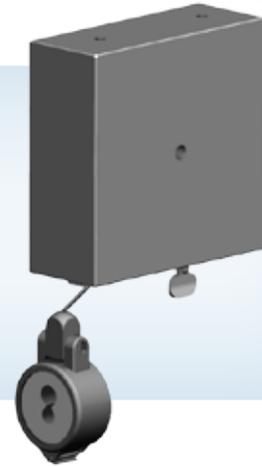
CNG Hose, Nozzle, Breakaways and mounting post are not included.



Dimensions



Heavy-Duty Spring Reel Construction



Features

- **Easy-to-use** - the spring loaded reel and stretch resistant cable provide smooth and steady tension throughout hose extension and return.
- **Compact and versatile design** - that can be easily installed under a fast-fill dispenser canopy or on a time-fill fueling post.
- **Standard hose clamp** - designed to fit standard NGV-1 and heavy-duty hoses.

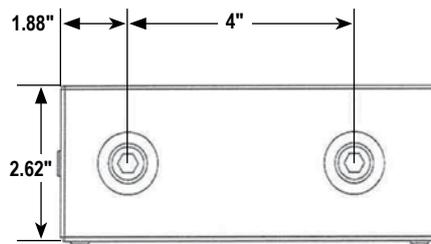
- **Robust reel** - designed especially for heavy-duty CNG fueling applications.
- **Easy to maintain** - the removable side plate provides full access to the mechanism for easy tension adjustment and unit maintenance.

*A convenient safety thumb screw is provided to lock the reel in place during tension adjustment.

Ordering Specifications

Product No.	Description	Fill Line O.D.	Vent Line O.D.	Length of Cord	Shipping Weight	
					lbs.	kg
6102-CNG	CNG Hose Retractor	5/8"	1/2"	10ft.	7 lbs.	3.1
6102-CNG2	CNG Hose Retractor	3/4"	5/8"	10ft.	7 lbs.	3.1

Mounting Dimensions





Materials

Body: 316L stainless steel

Internal Components: 316L stainless steel

Seals: Specially formulated polymers and elastomers specific to high-pressure NGV applications.



BDN

Features

- **Durable Corrosion-Resistant Construction** - stainless steel and brass provide improved durability and corrosion resistance in the harsh environments.
- **Jaw-Lock Connection** - to ensure against damage to the receptacle during the defueling process.
- **User Friendly Operation** - low force actuation lever provides enough mechanical advantage to open receptacle check valves with up to 4500-psi pressure differentials.
- Shaft extenders are included inside the handle to open receptacle check valves.
- Check valves installed on the vehicle, behind the receptacle, will prevent the BDN from functioning.
- **SAE-6 O-Ring Outlet Port** - allows for standard fittings to be used when

connecting nozzle to hose.

- **BDN Connects to OPW's NGV-1 style receptacles**
- **Individually Leak Tested and Inspected with Traceable Serial Numbers**

Specifications:

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

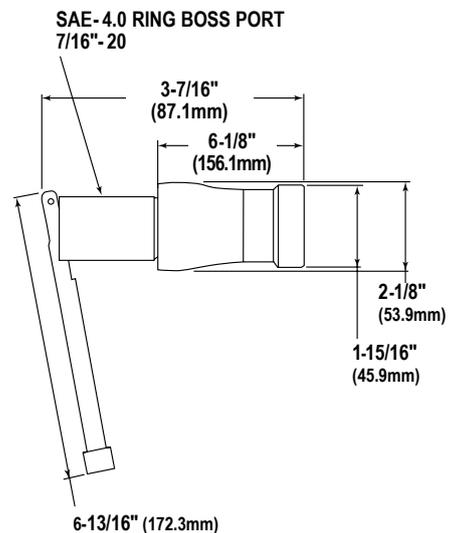
Weight: 3 lbs. (1.35 kg)

Cv: 0.5

MAWP BDN: 6250 psi (430 Bar)

BDN Vehicle Defueling Nozzle

OPW has developed a new tool to safely depressurize vehicles. This valve can also be used to transfer fuel from one vehicle to another in the event of a breakdown on the side of the road, or be used in areas where no refueling station is available. This nozzle should be hooked up to a check valve, three-way valve, hose and appropriate storage tank or fueling device.



BDN

Ordering Specifications

Product No.	Outlet Thread Size	Receptacle/Connection	Service Pressure	
BDN	SAE - 4, 7/16" - 20 UNF	OPW NGV1 Profile	6250 psi	430 bar

Rebuild Service Available.
See page 6 for Ordering Details



Gages - RINGGO

Available for easily measuring worn receptacles, which may lead to connection/disconnection issues resulting from brinelling or other damage. This fit gage is based on NGV1 and ISO-14469-2 "Tight Fit" tolerances, the maximum acceptable diameter. RINGGO is used for inspecting and identifying worn receptacles.

Materials

Body: Stainless steel



RINGGO-0001

Features

- **Durable Construction** - stainless steel construction for long service life.
- **RINGGO-0001** - compatible with NGV1 for testing receptacles
- **RINGGO-0005** - compatible with heavy duty ISO-14469-2 for testing receptacles.

Ordering Specifications

Product No.	Description	Works with	Weight	
RINGGO-0001	NGV1 Receptacle Fit Gage	NGV1 Receptacles	.03 lb.	.01 kg
RINGGO-0005	Heavy Duty ISO-14469-2 Receptacle Fit Gage	ISO-14469-2 Receptacles	.09 lb.	.03 kg

Gages - JAWGO

Available for easily measuring worn nozzles, which may lead to connection/disconnection issues resulting from brinelling or other damage. The gages are based on NGV1 "Tight Fit" tolerances, the maximum acceptable diameter. Nozzle gages are used for easily inspecting and identifying worn nozzle jaws.

Materials

Body: Stainless steel



JAWGO-1



JAWGO-5

Features

- **Durable Construction** - stainless steel construction for long service life.
- **RINGGO-0001** - compatible with NGV1 for testing receptacles.
- **JAWGO-1** - Compatible with NGV1 for testing Type 1 and Type 2 nozzle jaws.
- **JAWGO-5** - Used to test CT5000 Series nozzle jaws.

Ordering Specifications

Product No.	Description	Works with	Weight	
JAWGO-1	NGV1 Nozzle Go-No/Go Gage	NGV1 Type 1, 2 Nozzles	.62 lb.	.28 kg
JAWGO-5	NGV1 Nozzle Go-No/Go Gage	CT5000 Series Nozzles	1.3 lb.	.59 kg



Materials

L Series

OPW L Series NGV1-certified fueling receptacles are designed for use on medium storage natural gas vehicles, including automobiles, light trucks, shuttle buses and vans.



CL50 Series

OPW CL50 Series receptacles are designed for use on extremely high-flow, heavy-duty applications including quick-fill, self-service fueling of transit buses and large trucks.

Features

- High-Flow Capacity

The L Series receptacles have much larger flow capacity than conventional receptacles. The flow path allows very high flows, combined with low pressure drop and enhanced resistance to hydrate formation.

- Durable, Corrosion-Resistant Construction

All OPW receptacles are made from stainless steel.

- Non-Contact Check Valve

Each OPW NGV receptacle contains a highly reliable non-contact check valve that opens only when differential pressure is present during fueling (per NGV1 1.5.4).

- Unique Sealing System

The sealing system in all OPW receptacles consists of a stainless steel poppet that aligns with a rearward facing, captured seal located in the receptacle body. This arrangement prevents: seal "wash-out" during high-flow conditions and "cratering" due to debris. The seal material has exceptionally long service life, resists creep and deformation and has exceptional wear resistance under all operating pressure and temperature conditions. The poppet is treated, impact-resistant stainless steel with a polished surface to provide reliable sealing at low back pressures.

- Bulkhead or Straight Thread

The L Series allows the user to order a complete receptacle or buy and assemble their own adaptor shaft. They come with and without bulkhead fitting and with or without filter. The external bulkhead nut costs less than

conventional stainless steel fittings.

L Series receptacles can be used with parallel thread or compression tube fittings. L Series bodies come with either wrench flats or hex to ease vehicular mounting.

- Filtered Receptacle (LE)

Filters capture dirt and gas-borne debris commonly found in CNG systems. Filtered receptacles protect the receptacle seals and the vehicle fuel system. A 50-micron filter is incorporated ahead of the receptacle check valve.

- Design Your Own Sub-System

The OPW L Series receptacles come with the following standard features: rubber dust cap, mounting hex or wrench flats. LD and LE receptacles come with a standard external bulkhead nut.

The bulkhead fittings allow the use of inexpensive compression tube fittings. A 50-micron filter upstream of the poppet seal is available as an option. All adaptor shafts can be purchased from OPW or from your supplier of choice.

OPW L Series NGV1 Receptacles are designed for medium storage NGV at 200 Bar (3000 psi) or 250 Bar (3600 psi) operating pressure.

- Rubber Dust Cap

Standard protective dust caps are supplied with all receptacles.

- Serviceable O-Ring

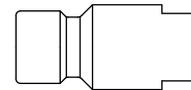
Designed to prevent leakage at the connection point.

CNG Receptacles

OPW offers a complete line of fueling receptacles for any natural gas vehicle (NGV) application. Our receptacles form part of a dedicated system designed specifically for fueling NGV.

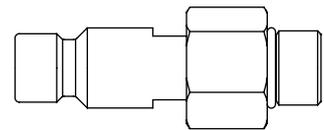
LB

- Wrench Flats



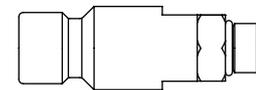
LBXX78

- 7/8 - 14 UNF - 2A



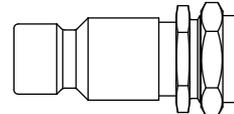
LBXX16

- 9/16 - 18 - UNF - 2A



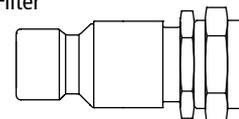
LD

- Bulk Head



LE

- Bulk Head
- Filter



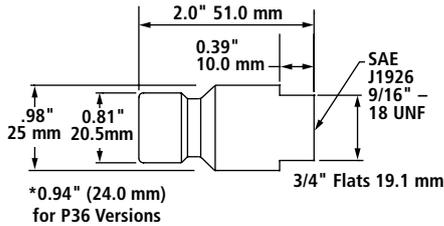
Listings and
Certifications



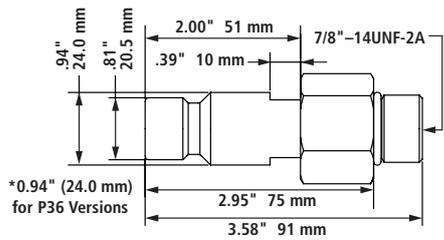


L Series-NGV1 Fueling Receptacles

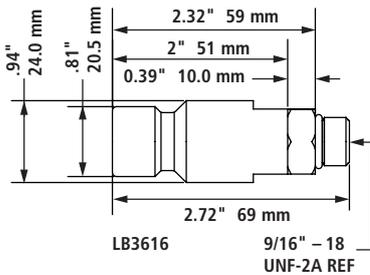
OPW L Series NGV1-certified refueling receptacles are designed for use on medium storage natural gas vehicles, including automobiles, light trucks, shuttle buses and vans.



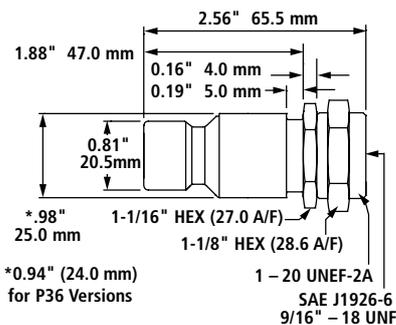
LB30 / LB36



LBXX78



LB3616 9/16" - 18 UNF-2A REF



LD30 / LD36 / LE30 / LE36

Materials

Body: Stainless steel

Internal Parts: Stainless steel and brass

Seals: Specially formulated polymers and elastomers specific to high-pressure NGV applications.



Features

- Protective Rubber Dust Caps - included with all OPW "L" series receptacles.
- Connects with CC200, CC300, CC600 and CT1000 Series NGV1 CNG Nozzles

Specifications:

Min. Flow Rate: 1500 SCFM @ 3000 psid
Temperature Range: -40° F to 250° F (-40° C to 120° C)

Cv: LB = 0.91
LD = 0.85
LE = 0.83

MAWP: 5000 psi (345 Bar)

Ordering Specifications

Product #	Type/Size	Service Pressure		Weight	
		psi	bar	lb	kg
LB30	NGV1 Receptacle w/ 3/4" Flats, P30	3000	200	.31	.14
LB36	NGV1 Receptacle w/ 3/4" Flats, P36	3600	250	.31	.14
LB3078	LB30 + 50061	3000	200	0.68	0.31
LB3678	LB36 + 50061	3600	250	0.74	0.34
LB3616	LB36 + 50030	3600	250	0.42	0.19
LD30	NGV1 Receptacle w/ Bulkhead, P30	3000	200	.44	.2
LD36	NGV1 Receptacle w/ Bulkhead, P36	3600	250	.44	.2
LE30	NGV1 Receptacle w/ Bulkhead and Filter, P30	3000	200	.44	.2
LE36	NGV1 Receptacle w/ Bulkhead and Filter, P36	3600	250	.44	.2
1141	Replacement "Interface" O-ring for L Series receptacles				
001147	Replacement Rubber Dust Cap				
001147 ORANGE	Orange Color Replacement Rubber Dust Cap				

Adaptor Shafts: Can be threaded into LB/LD/LE receptacles above. Materials: Stainless steel

Adaptor Shafts P/N	Description	Weight	
		lbs.	kg
50030	Adaptor Shaft SAE-6 (9/16" - 18 UNF - 2A) x SAE-6 (9/16" - 18 UNF - 2A)	0.07	0.03
50061	Adaptor Shaft SAE-10 (7/8" - 14 UNF - 2A) x SAE-6 (9/16" - 18 UNF - 2A)	0.12	0.05
50066	SAE-6, (9/16"x 18 UNF) to 3/8" Tube Fitting with Cap, Ferrule and Swage Ring	0.09	0.04

Listings and Certifications



CE 0036





Materials

Body and Adaptor Shaft: Stainless steel
Internal Components: Stainless steel
Seals: Specially formulated polymers and elastomers specific to high-pressure NGV applications.



Features

- **Durable, Corrosion-Resistant Construction** - Stainless steel construction provides improved durability and corrosion resistance in the harsh on-highway, heavy-duty environment. This material is harder than the original brass for even greater wear resistance and longer life.
- **Non-Contact Check Valve** - Each OPW CL series receptacle contains a highly reliable non-contact check valve that opens when differential pressure is present during refueling.
- **Improved Sealing System** - The sealing system in all CL series receptacles consists of a stainless steel poppet that aligns with a rearward facing captured seal located in the receptacle body. This arrangement prevents seal "wash out" during high flow deformation

and has exceptional wear resistance under all operating pressure and temperature conditions.

- **Rubber Dust Cap** - A standard protective dust cap is supplied with CL40 series receptacles.
- **Serviceable O-Ring** - Designed to prevent leakage at the connection point.
- Connects to CT5000S and CC600S series heavy duty CNG nozzles.
- **Individually Leak Tested and Inspected.**

Specifications:

Min. Flow Rate: 1500 SCFM @ 3000 psid
 (42.4753 CMM @ 207 bar)

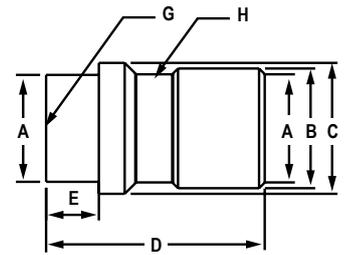
Temperature Range: -40° F to 250° F
 (-40° C to 120° C)

Cv: .91

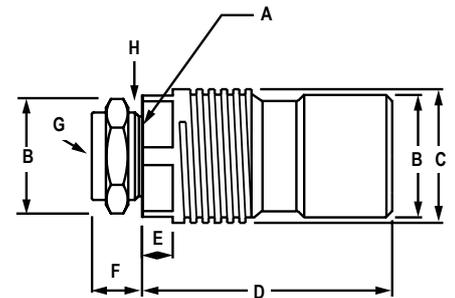
MAWP: 5000 psi (345 Bar)

OPW CL40 SERIES BUS/ HEAVY-DUTY TRUCK RECEPTACLES

OPW now adds stainless steel receptacles to their line of heavy-duty refueling receptacles. The new CL40 Series design is the result of many years of experience in the demanding NGV environment.



CL40



CL4078

Ordering Specifications

Product No.	Type/Size	Service Pressure	Weight	
			lbs.	kg
CL40	9/16" (1.43 cm) - 18 SAE-6 Female Port	3600 psi (250 bar)	0.91	0.413
CL4078	9/16" (1.43 cm) - 16 SAE-6 Female Port, with 1" (2.54 cm) - 20 Bulkhead Fitting	3600 psi (250 bar)	1.141	0.518
1121	Replacement "Interface" O-Ring for CL40 and CL50 Series Receptacles			
001126	Replacement Rubber Dust Cap			

Adaptor Shafts P/N	Description	Weight	
		lbs.	kg
50030	SAE-6, Male 9/16" -18 Male to 9/16" -18 Male	0.07	0.03
50061	SAE-10, 9/16" -18 Male to 7/8" -14 Male	0.12	0.05
50066	3/8" Tube Fitting, no Bulkhead	0.09	0.04

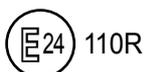
Dimensions

	CL40		CL4078	
	in.	mm	in.	mm
A	1.125	28.6	1.25	31.8
B	1.26	32	1.26	32
C	1.38	35	1.38	35
D	2.28	58	2.38	60.5
E	0.551	14	0.314	8
F	N/A	N/A	0.571	14.5
G	SAE J1926-6 9/16" (1.43 cm) 18 UNF		SAE J1926-6 9/16" (1.43 cm) 18 UNF	
H	N/A		1 - 20 UNEF - 2A	

Listings and
Certifications



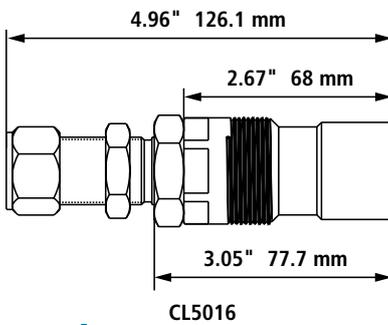
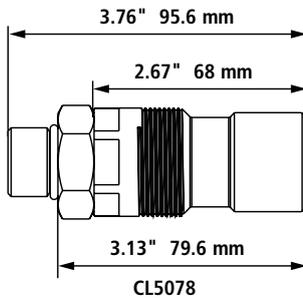
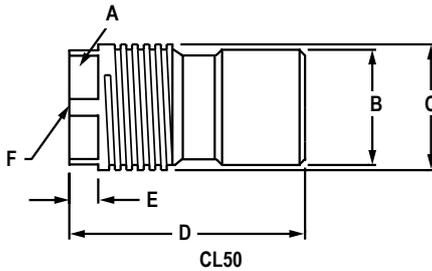
CE 0036





CL50 Series Bus/Heavy-Duty Truck Receptacles

OPW CL50 Series receptacles are designed for use on extremely high-flow, heavy-duty applications including quick-fill, self-service fueling of transit buses and large trucks.



Dimensions

CL50	in	mm
A	1.25	32
B	1.25	32
C	1.39	35
D	2.67*	68*
E	0.31	8
F	SAE J1926-10 7/8"-14 UNF	

*D-Dimensions for:

	in	mm
CL5000	4.80	122.1
CL5016	4.96	126.1
CL5078	3.76	95.6

Materials

Body and Adaptor Shaft: Stainless steel
Internal Components: Stainless steel
Seals: Specially formulated polymers and elastomers specific to high-pressure NGV applications.



Features

- **Durable, Corrosion-Resistant Construction** - stainless steel construction provides improved durability and corrosion resistance in the harsh on-highway, heavy-duty environment. This material is harder than the original brass for even greater wear resistance and longer life.
- **Non-Contact Check Valve** - each OPW CL series receptacle contains a highly reliable non-contact check valve that opens when differential pressure is present during refueling.
- **Improved Sealing System** - the sealing system in all CL series receptacles consists of a stainless steel poppet that aligns with a rearward facing captured seal located in the receptacle body. This arrangement prevents seal "wash out" during high-flow deformation and has exceptional wear resistance under all operating pressure and temperature conditions.
- **High-Flow** - the flow path has been redesigned to increase the amount of flow and decrease the pressure drop resulting in a reduction of noise/vibration from the check valve during the "end of fill."
- **Rubber Dust Cap** - a standard protective dust cap is supplied with CL50 series receptacles.
- **Serviceable O-Ring** - designed to prevent leakage at the connection point.
- Connects to CT5000S and CC6000 series heavy-duty CNG nozzles.

Specifications:

Min. Flow Rate: 5000 SCFM @ 3000 psid
 Temperature Range: -40° F to 250° F
 (-40° C to 120° C)

Cv: 3.30

MAWP: 5000 psi (345 bar)

Ordering Specifications

Product No.	Type/Size	Service Pressure		Weight	
CL50	7/8" - 14 SAE-10 Female Port	3600 psi.	(250 bar)	0.91 lb.	0.413 kg
CL5000	5/8" Double Ferrule Fitting	3600 psi.	(250 bar)	1.29 lbs.	0.585 kg
CL5078	7/8" - 14 SAE-10 Male O-Ring Fitting	3600 psi.	(250 bar)	1.141 lbs.	0.518 kg
CL5016	16 mm Double Ferrule Fitting	3600 psi.	(250 bar)	1.29 lbs.	0.585 kg
1121	Replacement "Interface" O-Ring for CL50 Series Receptacles				
001126	Replacement Rubber Dust Cap				

Listings and Certifications



CE 0036





LPG Autogas Nozzles

OPW CleanEnergy Fueling Products offers an extensive line of patented LPG fueling products and accessories manufactured in Czech Republic, deliver design and manufacturing excellence and have more than 50 years of reliable service.

All LPG Autogas nozzles are available in BSPP threads.



Autogas OT300 Series LPG Nozzle

The OPW Autogas OT300 is designed for the Italian-Type coupling. Nozzle inlet has 1" BSPP threads. Also available in brass models.



Autogas OTA-300A Series LPG Nozzle

The OPW Autogas OTA-300A is designed for the Italian-Type coupling. Nozzle inlet has 1" BSPP threads.

- Stainless steel piston for improved durability.
- Reduced volume of residual vent gas for improved environmental performance.



Autogas BNA-300A Series LPG Nozzle

The BNA-300A with Thumb Release is designed for the Italian-Type coupling. Nozzle inlet has 1" BSPP threads. Also available in brass models.



Autogas BNA-300HGA Series LPG Nozzle

The BNA-300HGA with Thumb Release is designed for the Italian-Type coupling. Nozzle inlet has 1" BSPP threads. Also available in brass models.

- Handguard lever.



Autogas OT300 and OTA-300A Series LPG Nozzle

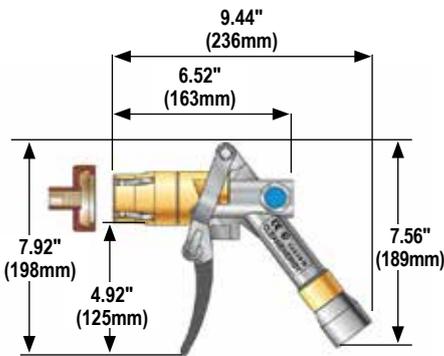
The OPW Autogas OTA-300A and OTA-300BA are designed for the Italian-Type coupling. Nozzle inlet has 1" BSPP threads. The OTA-300A series features:

- **Stainless Steel Piston** for improved durability
- **Reduced volume of residual vent gas** for improved environmental performance

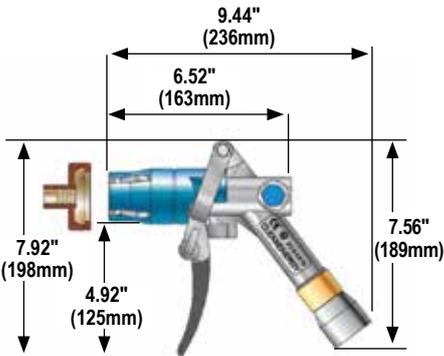


OT420 Rubber Cover

OTA-300A connects to Italian Dish Coupler (Shown Below)



OTA-300BA



OTA-300A

Materials

Body: Aluminum

Internal Components: Brass and steel

Seals: Specially formulated polymers and elastomers specific to LPG applications.

External Components: Brass, stainless steel, anodized aluminum

OT321



OTA-300A

Features

- **User-Friendly Single-Action Operation** - entire fueling operation is initiated by simply engaging nozzle to the receptacle with a single squeeze of the hand.
- **Hammer-Lock Technology** - maximum durability. Designed specifically for frequent coupling and uncoupling.
- **Ergonomic Design** - insulated handle protects operator from temperature effects created by high-flowing LP gas. Minimal force required to engage nozzle.
- **Durable Construction** - heavy-duty brass, aluminum and stainless steel construction provides excellent corrosion resistance in the harsh fueling environment.
- **Ease of Use** - incorporates a single plane 360° inlet swivel.
- **Safety** - will not dispense gas until securely engaged onto an appropriate receptacle. Once engaged, will not disengage until released by operator.

- **Individually Leak Tested and Inspected with Traceable Serial Numbers**

- **Replaceable Rubber Cover** - deflects venting LP gas away from operator's hand.

Specifications:

MAWP: 350 psi (24 bar)

LPG Discharge on Disconnect: Less than 1 cm³

Weight: 3.08 lbs. (1.40 kg)

Locking Release: Trigger or Lever

Coupling Style: Italian Style

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Ordering Specifications

Product No.	Inlet Thread Size	Service Pressure	Weight
OT300	1" BSPP	350 psi 24 bar	
OT300BRASS	1" BSPP	350 psi 24 bar	
OTA-300A	1" BSPP	350 psi 24 bar	3,08 lbs. (1,40 kg)
OTA-300BA (Brass)	1" BSPP	350 psi 24 bar	
OT321	3/4" BSPP Adaptor		

All LPG Autogas nozzles are available in BSPP threads.



Materials

Body: Aluminum

Internal Components: Brass and steel

Seals: Specially formulated polymers and elastomers specific to LPG applications.

External Components: Aluminum and stainless steel.



BNA-300HGA

BNA-300A

Features

- **User-Friendly Single-Action Operation**
 - entire fueling operation is initiated by simply engaging nozzle to the receptacle with small twist and a single squeeze of the hand.
- **New Ergonomic Design** - 2 resin shells insulate and protect the internal parts from falls and the operator from the effects of the low temperature generated by the high-flow LPG. Minimum effort is required to couple the nozzle and the ergonomic release button makes release easier.
- **Ease of Use** - incorporates a single plane 360° inlet swivel.
- **Individually Leak Tested and Inspected with Traceable Serial Numbers**

- **Low Vent Volume upon Disconnect:** 1.6cc
- **Replaceable Rubber Cover (optional)**
 - deflects venting LP gas away from operator's hand.
- **Nylon/Fiberglass Hand Insulator** - protects operator from low temperature effects.

Specifications:

MAWP: 362 psi (25 bar)

LPG Discharge on Disconnect: Less than 1 cm³

Locking Release: Push Button on Body

Coupling Style: Italian Style

Temperature Range: -40° F to 212° F
(-40° C to 100° C)

Ordering Specifications

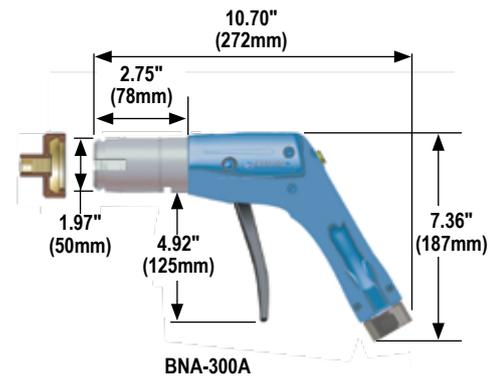
Product No.	Inlet Thread Size	Service Pressure		Weight
BNA-300A	1" BSPP	362 psi	25 bar	3,41 lbs. (1,55 kg)
BNA-300HGA	1" BSPP	362 psi	25 bar	3,52 lbs. (1,60 kg)
OT321	3/4" BSPP Adaptor			
OT420	Replaceable Rubber Cover			

Autogas BNA-300A and BNA-300HGA Series LPG Nozzles

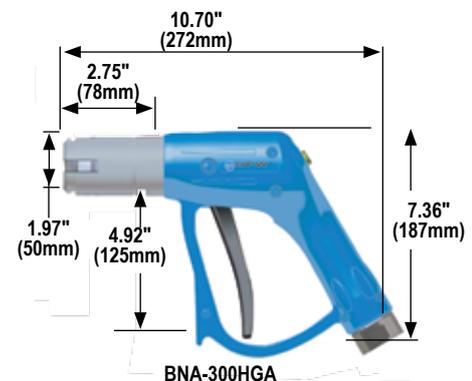
The BNA-300A and BNA-300HGA nozzles with Thumb Release is designed for the Italian-Type coupling. Nozzle inlet has 1" BSPP threads. Also available in brass models.



OT321



BNA-300A



BNA-300HGA



LPG Fueling Product Accessories

OPW CleanEnergy Fueling Products offers an extensive line of patented LPG fueling products and accessories manufactured in Czech Republic, Europe, and deliver design and manufacturing excellence on more than 50 years of reliable gas supply equipment experience.



LPG Accessories OAS400 3/4" Nozzle Breakaway

The OPW OAS400 3/4" Breakaway with Anchor Strap is designed for in line installation with whip-hose in any LPG System. Valve inlet has 3/4" BSPP threads. Safely shuts off fuel flow in the event of a vehicle driveaway.



LPG Accessories Adaptors OT318 1-3/4" Acme to Italian

The OPW Adaptors are designed to allow for the best nozzle solution no matter what receptacle you have.



LPG Accessories OC123 3/4" Dispenser Shear Valve

The OPW OC123 3/4" Dispenser Shear Valve is designed to shut off LPG flow in the event of an impact to the dispenser. The shearing action, in case of impact, avoids damage to both the dispenser and supply piping. The dual-poppet design contains the LPG on both sides (supply piping and dispenser) hence protecting the environment and guaranteeing the safety of the installation.



LPG Accessories Adaptors OT322 Italian to 1-3/4" Acme

The OPW Adaptors are designed to allow for the best nozzle solution no matter what receptacle you have.



Materials

Body: Steel (brass optional)

Internal Components: Brass and steel

Seals: Specially formulated polymers and elastomers specific to LPG applications.



OAS400

Features

- **Durable Construction** - heavy-duty brass, aluminum and steel construction provides excellent corrosion resistance in the harsh fueling environment.
- **Added Safety** - anchor strap allows for installation anywhere and added assurance.
- **Patented Front Compression Collar Provides Ease of Use** - breakaway can be reconnected without tools by simply turning the front ring to compress the locking sleeve. Reinsert the breakaway portion of the safety valve and then unscrew front ring to allow locking sleeve to return to its original position.
- **Individually Leak Tested and Inspected**

Specifications:

MAWP: 350 psi (24 bar)

Separation Force: 150-200 lbs. (200-500N)

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

LPG Accessories OAS400 3/4" Nozzle Reconnectable Breakaway

The OPW OAS400 3/4" Breakaway with Anchor Strap is designed for in-line use with any LPG fueling system. Valve inlet has 3/4" BSPP threads. Safely shuts off fuel flow in the event of a vehicle driveaway.

Ordering Specifications

Product No.	Inlet Thread Size	Material	Service Pressure		Weight
OAS400	3/4" BSPP Female	Brass	350 psi	24 bar	2,314 lbs. (1,05 kg)



LPG Accessories

OC123 3/4" Dispenser Shear Type Breakaway

The OPW OC123 3/4" Dispenser Shear Valve is designed to shut off LPG flow in the event of a vehicle driveaway. The breakaway minimizes the damage to both the dispenser and refueling nozzle.

Materials

- Body:** Plated steel and brass
- Internal Components:** Brass and steel
- Seals:** Specially formulated polymers and elastomers specific to LPG applications.

OC123



Features

- **Durable Construction** - heavy-duty steel and brass construction provides excellent performance in the harsh fueling environment.
- **Increased safety** - helps to prevent damage to fueling facilities and equipment.
- **Ease of Use** - connect one side directly to an anchored point of the supply piping (minimum 5000N of resistance in all directions) and the other side to an anchored inlet in the dispenser.
- **Poppet Configuration** - utilizes a double poppet design where both sides close when breakaway separates.

- **Warning:** Never connect the OC123 to hoses or loosely anchored piping. Doing so may prevent the proper shearing operation. Ask your OPW representative for directions if you have any doubt.

Specifications:

MAWP: 350 psi (24 bar)

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Ordering Specifications

Product No.	Inlet Thread Size	Service Pressure
OC123	3/4" BSPP Female	350 psi 24 bar

Materials

- Body:** Steel, aluminum and brass
- Internal Components:** Brass and steel
- Seals:** Specially formulated polymers and elastomers specific to LPG applications.

OT318

OT322



Features

- **Durable Construction** - heavy-duty steel and brass construction provides excellent performance in the harsh fueling environment.
- **Ease of Use** - connect directly to dispenser outlet. Hose assembly then threads into end of breakaway.

Specifications:

MAWP: 350 psi (24 bar)

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Ordering Specifications

Product No.	Description	Service Pressure
OT318	1-3/4" Acme to Italian	350 psi 24 bar
OT322	Italian to 1-3/4" Acme	350 psi 24 bar



Hydrogen Fueling Products

OPW CleanEnergy Fueling Products offers a complete line of fueling products for high-pressure, high-flow hydrogen fueling systems. This line includes a series of nozzles for quick-fill, self-service applications, receptacles, in-line breakaways, fittings, valves and filters.

Fill-Line Breakaway (FLB-1000) - Standard Duty - See page page 19

Next Generation Vent Line Breakaway (NGVLB) - See page page 18page



CH1000/CH2000 and CW3600/CW5000 Series Self-Service Hydrogen Nozzle

OPW Series self-service nozzles are designed for high-pressure, high-flow hydrogen fueling systems. Applications include quick-fill, self-service fueling nozzles of automobiles, light trucks, vans and buses. Must be used only in conjunction with OPW L Series Hydrogen Receptacles.



L Series Hydrogen Fueling Receptacle

OPW L Series Hydrogen Refueling Receptacles are designed for use on automobiles, light trucks, vans and buses. Must be used in conjunction with OPW Hydrogen Nozzles.



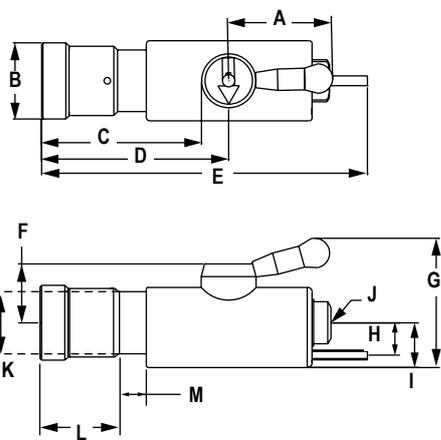
BDN-H Vehicle Defueling Nozzle

OPW has developed a new tool to safely depressurize vehicles. This valve can also be used to transfer fuel from one vehicle to another in the event of a breakdown on the side of the road, or be used in areas where no refueling station is available. This nozzle should be hooked up to a check valve, three-way valve, hose and appropriate storage tank or fueling device.



CH1000/CH2000 Series Self-Service Hydrogen Nozzle

OPW CH Series self-service nozzles are designed for high-pressure, high-flow hydrogen fueling systems. Applications include quick-fill, self-service fueling nozzles for automobiles, light trucks, vans and buses. Must be used only in conjunction with OPW LK5000 or LK3600 ISO Profile Hydrogen Receptacles.



Dimensions

	in.	mm
A	2.625	66
B	1.9375	49
C	4	102
D	4.6875	119
E	8.1875	208
F	1.5	38
G	3.25	83
H	0.8125	21
I	1.125	29
J	Straight Thread O-Ring Boss Port SAE J1926-6 (9/16" - 18UNF-2B)	
K	1.625	40
L	2.01	51.2
M	0.72	18.4

Materials

Body: 316L stainless steel

Internal Components: 316L stainless steel

Seals: Specially formulated polymers and elastomers specific to high-pressure NGV applications.



CH1000/CH2000

Features

- **User-Friendly Single Action Operation** - engage nozzle and receptacle with a 180° rotation of the handle. This secures nozzle jaws onto receptacle, activating a system of three internal valves that regulate fuel flow. The nozzle will not dispense gas until securely engaged onto matching receptacle. When fueling is complete, rotate the handle back through 180° to the disconnect position to automatically stop the flow of gas and release the nozzle from the receptacle.
- **Ergonomic Design** - one simple and convenient motion ensures connection and dispensing by all users. Insulated jacket protects operator's hands.
- **High-Flow/Fast-Fill Capability** - provides quick fueling for all types of vehicles. Internal seat designs and materials have been specially selected for high-flow hydrogen fueling.
- **Internal 0.2 mm Filter** - filter protects from impurities in the high velocity gas stream that can damage the nozzle and receptacle seals as well as components in the vehicle fuel system.
- **Directed Vent** - captures the gas vented at disconnect and directs it out of the nozzle (-4 compression adaptor required) via a 1/4" stainless steel vent tube which can be piped to a remote venting location or back to a compressor. Capturing vent gas is environmentally desirable by agencies such as the EPA and provides an added measure of safety by minimizing the amount of gas present at the filling site.
- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of high-pressure gas connections of hydrogen fueling. Contact pressures are distributed over the entire beveled edge of the receptacle, thus reducing long-term wear.
- **Dedicated Coupling Profile** - the jaw and receptacle profiles are designed to eliminate the chance of misconnection to any other form of fuel such as CNG. This nozzle will only couple securely to an OPW L Series Hydrogen Receptacle.
- **Durable Construction** - heavy-duty, 316 stainless steel construction provides unmatched corrosion resistance in this harsh and difficult refueling environment.
- **Individually Leak Tested and Inspected with Traceable Serial Numbers**

Specifications:

Min. Flow Rate: 2000 SCFM @ 3600 psid

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Cv: 0.48

MAWP: 6250 psi (430 bar)

Ordering Specifications

Product No.	Inlet Thread Size	Service Pressure		Weight
CH1000	SAE- 6, 9/16" - 18 UNF	5000 psi	345 bar	3,35 lbs. (1,52 kg)
CH2000	SAE- 6, 9/16" - 18 UNF	3600 psi	250 bar	

Connects to LK5000, LK3600 ISO profiles



Materials

Body: 316L stainless steel with stainless steel jaws

Internal Components: 316L stainless steel

Seals: Specially formulated polymers and elastomers specific to high-pressure hydrogen applications.

CW3600/CW5000



Features

- **User-Friendly Single Action Operation** - engage nozzle and receptacle with a 180° rotation of the handle. This secures nozzle jaws onto receptacle, activating a system of three internal valves that regulate fuel flow. The nozzle will not dispense gas until securely engaged onto matching receptacle. When fueling is complete, rotate the handle back through 180° to the disconnect position to automatically stop the flow of gas and release the nozzle from the receptacle.

- **Ergonomic Design** - one simple and convenient motion ensures connection and dispensing by all users. Insulated jacket protects operator's hands.

- **High-Flow/Fast-Fill Capability** - provides quick fueling for all types of vehicles. Internal seat designs and materials have been specially selected for high-flow hydrogen fueling.

- **Internal 0.2 mm Filter** - filter protects from impurities in the high velocity gas stream that can damage the nozzle and receptacle seals as well as components in the vehicle fuel system.

- **Directed Vent** - captures the gas vented at disconnect and directs it out of the nozzle via a 1/4" stainless steel vent tube (-4 compression adaptor required) which can be piped to a remote venting location or back to a compressor. Capturing vent gas is environmentally desirable by agencies such as the EPA and provides an added measure of safety by minimizing the amount of gas present at the filling site.

- **Jaw-Lock Technology** - designed specifically for the frequent coupling and uncoupling of high-pressure gas connections of hydrogen fueling. Contact pressures are distributed over the entire beveled edge of the receptacle, thus reducing long-term wear.

- **Dedicated Coupling Profile** - the jaw and receptacle profiles are designed to eliminate the chance of misconnection to any other form of fuel such as CNG. This nozzle will only couple securely to an OPW LW Series Hydrogen Receptacle.

- **Durable Construction** - heavy-duty 316 stainless steel construction provides unmatched corrosion resistance in this harsh and difficult refueling environment.

- **Individually Leak Tested and Inspected with Traceable Serial Numbers**

Specifications:

Min. Flow Rate: 2000 SCFM @ 3600 psid

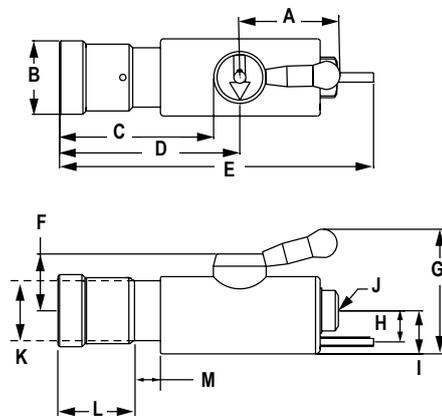
Temperature Range: -40° F to 185° F
(-40° C to 85° C)

Cv: 0.48

MAWP: 6250 psi (430 bar)

CW3600/CW5000 Series Self-Service Hydrogen Nozzle

OPW CW Series Self-Service Nozzles are designed for high-pressure, high-flow hydrogen fueling systems. Applications include quick-fill, self-service fueling nozzles of automobiles, light trucks, vans and buses. Must be used only in conjunction with OPW LW5000 or LW3600 SAE Profile Hydrogen Receptacles.



Dimensions

	in.	mm
A	2.625	66
B	1.9375	49
C	4	102
D	4.6875	119
E	8.1875	208
F	1.5	38
G	3.25	83
H	0.8125	21
I	1.125	29
J	Straight Thread O-Ring Boss Port SAE J1926-6 (9/16" - 18 UNF-2B)	
K	1.625	40
L	2.01	51.2
M	0.72	18.4

Ordering Specifications

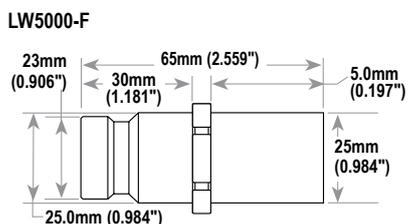
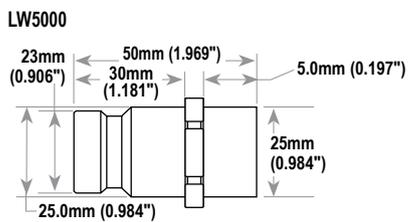
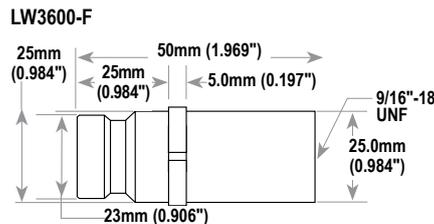
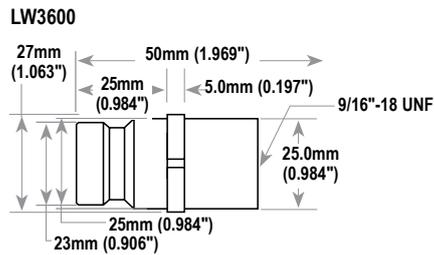
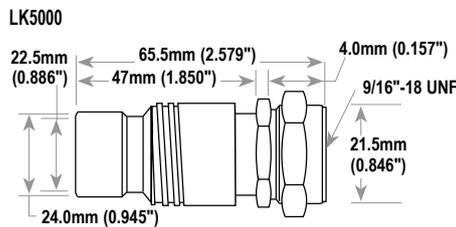
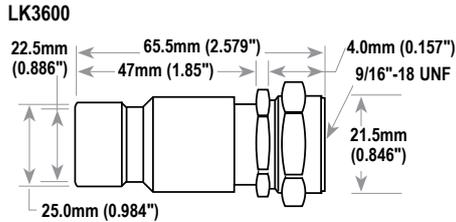
Product No.	Inlet Thread Size	Service Pressure		Weight
CW3600	SAE-6, 9/16"-18 Female	3600 psi	250 bar	3.44 lbs. (1,52 kg)
CW5000	SAE-6, 9/16"-18 Female	5000 psi	345 bar	

Connects to LW3600, LW500, J2600 SAE profiles



L Series Hydrogen Fueling Receptacle

OPW L Series Hydrogen Refueling Receptacles are designed for use on automobiles, light trucks, vans and buses. Must be used only in conjunction with OPW CH1000 Hydrogen Nozzles.



Materials

Body: 316L stainless steel

Seals: Specially formulated polymers and elastomers specific to high-pressure hydrogen applications.



L Series Hydrogen Fueling Receptacle

Features

- **Durable, Corrosion-Resistant Construction** - all OPW receptacles are made from 316 stainless steel. This material is proven to stand up in the harsh hydrogen refueling environment.
- **Non-Contact Check Valve** - each OPW receptacle contains a highly reliable non-contact check valve that opens when differential pressure is present during refueling.
- **Unique Sealing System** - all OPW receptacles consist of a stainless steel poppet that aligns with a rearward facing capture seal located in the receptacle body. This arrangement prevents seal "wash-out" during high flow conditions and "cratering" due to debris. The seal material has exceptionally long service life, resists creep and deformation and has exceptional wear resistance under all operating pressure and temperature conditions. The poppet is also 316 stainless steel with a polished surface to provide reliable sealing at low back pressures.
- **High-Flow/Fast-Fill Capability** - the LW Series receptacles have a large flow capacity. The flow path allows very high flows combined with low pressure drop and enhanced resistance to hydrate formation.

- **Optional 0.4 mm Filter** - the LK5000/LK3600 receptacle has a filter located in front of the receptacle check valve. This captures most of the dirt and road grime that collects in and around the vehicle receptacle. The filter protects from impurities in the high velocity gas stream that can damage the receptacle seals as well as components in the vehicle fuel system. This is a serviceable item and can be removed and reinstalled with special tools supplied by OPW.
- **Dedicated Coupling Profile** - the receptacle profiles are designed to eliminate the chance of misconnection to any other form of fuel such as CNG.
- **Individually Leak Tested and Inspected with Traceable Batch Numbers**
- **Agency Listings Pending**

Specifications:

Min. Flow Rate: 2000 SCFM @ 3600 psid
 Temperature Range: -40° F to 250° F
 (-40° C to 120° C)

Weight: Receptacles
 Receptacle Cv: 0.91 Non-filtered
 0.83 Filtered

MAWP: 6250 psi (430 bar)

Ordering Specifications

Product No.	Inlet Thread Size	Service Pressure	Description	Weight
LK3600	SAE- 6, 9/16"-18 UNF	5000 psi 345 bar	1/16" Hex with bulkhead mounting ISO Profile	0,50 lbs. (0,23 kg)
LK5000	SAE- 6, 9/16"-18 UNF	3600 psi 250 bar	1/16" Hex with bulkhead mounting ISO Profile	
LW3600	SAE- 6, 9/16"-18 UNF	3600 psi 250 bar	1/16" Hex SAE Profile	
LW3600-F	SAE- 6, 9/16"-18 Filtered	3600 psi 250 bar	1/16" Hex SAE Profile	
LW5000	SAE- 6, 9/16"-18 UNF	5000 psi 345 bar	1/16" Hex SAE Profile	
LW5000-F	SAE- 6, 9/16"-18 Filtered	5000 psi 345 bar	1/16" Hex SAE Profile	

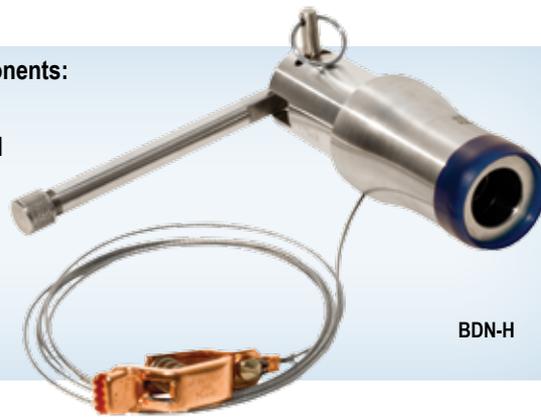
LW series hydrogen SAE J2600 profile receptacle
 NOTE: -F are Filtered Receptacles



Materials

Body and Internal Components:
316L stainless steel

Seals: Specially formulated polymers and elastomers specific to high-pressure hydrogen applications.



BDN-H

Features

- **Durable Corrosion-Resistant Construction** - stainless steel and brass provide improved durability and corrosion resistance in the harsh environments. All wetted components are hydrogen fuel compatible (BDN-H).
- **Jaw-Lock Connection** - to ensure against damage to the receptacle during the defueling process.
- **User-Friendly Operation** - low force actuation lever provides enough mechanical advantage to open receptacle check valves with up to 4500 psi pressure differentials.
- Shaft extenders are included inside the handle to open receptacle check valves.
- **SAE-4 O-Ring Outlet Port** - allows for standard fittings to be used when connecting nozzle to hose.
- Check valves installed on the vehicle,

behind the receptacle, will prevent the BDN-H from functioning.

- **Connects to OPW's Hydrogen Receptacle**
- **Individually Leak Tested and Inspected with Traceable Serial Numbers**
- **Agency Listings Pending**

Specifications:

Temperature Range: -40° F to 185° F
(-40° C to 85° C)

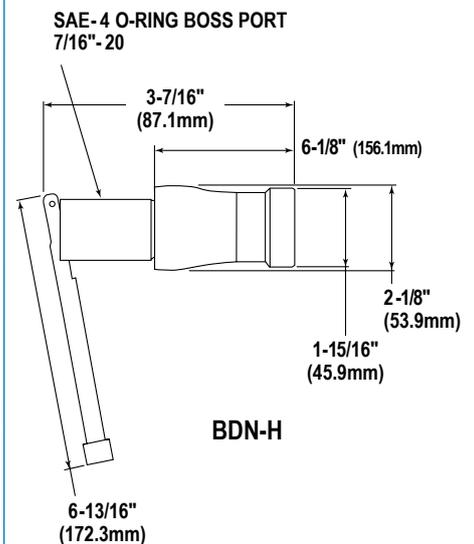
Weight: 3 lbs. (1.35 kg)

Cv: 0.5

MAWP: 7815 psi (538 bar)

BDN-H Vehicle Defueling Nozzle

OPW has developed a new tool to safely depressurize vehicles. This valve can also be used to transfer fuel from one vehicle to another in the event of a breakdown on the side of the road, or in areas where no refueling station is available. This nozzle should be hooked up to a check valve, three-way valve, hose and appropriate storage tank or fueling device.



Ordering Specifications

Product No.	Outlet Thread Size	Receptacle/Connection	Service Pressure
BDN-H for Hydrogen Service	SAE - 4, 7/16" - 20 UNF	SAE J2600 Profile	5000 psi 345 bar

Rebuild Service and In-Field Repair Kits Available see page 6 for Ordering Details.

Operations in Europe,
Middle East and
Africa



1 OPW Sweden/KPS
OPW Sweden AB
Box 70
736 22 Kungsör
Sweden
+46 227 422 00

3 Fibrelite Composites Ltd
Snaygill Industrial Estate
Keighley Road, Skipton
North Yorkshire BD23 2QR
United Kingdom
+44 1756 799 773

5 OPW CIS
Gilyarovskogo str. 4,
office 303
Moscow 129090
Russia
+7 495 287 96 99

7 OPW FMS Poland
Petro Vend sp. z o.o.
ul. Warszawska 184
32-086 Węgrzce
Poland
+48 12 4106600

2 OPW Czech Republic
Dover CR spol. s.r.o.
Prumyslova 4
431 51 Klasterec nad Ohri
Czech Republic
+420 474 624 025

4 OPW France
73 avenue Carnot
FR-94230 Cachan
France
+33 1 4663 0400

6 OPW Slovakia
Antolská 4
SK-85107 Bratislava
Slovakia
+42 1 911 886 613

OPW Retail Fueling

Components and products to protect the environment and the consumer at retail fueling sites for conventional and alternative fuels.

OPW Electronic Systems

Innovative electronic tank gauges and fuel control systems to ensure customers know how much fuel they have and where it is going. Also, Automated Vehicle Wash Systems.

OPW Chemical & Industrial

Safe and efficient loading and unloading of critical hazardous chemicals: loading arms, swivel joints, sight flow indicators, quick and dry disconnect couplers, and safety breakaways.

OPW Transportation

Components and systems for use on Tank Trucks and Rail Tank Cars to ensure the safe handling, loading, transport and unloading of hazardous bulk products, including: petroleum, chemical and dry bulk cargo.