Hip-Air™ Breathing Apparatus & Combination Pressure-Demand Breathing Apparatus

[Work and move freely with an easily accessible escape option]

Features

- Units allow users to work in an IDLH (Immediately Dangerous to Life or Health) atmosphere by providing an emergency-escape capability.
- Units are lightweight and very low-profile
- Facepiece choice of full- or half-mask facepiece, including welders' versions
- NIOSH-approved

Application

The Hip-Air and Combination Pressure-Demand Breathing Apparatus provide respiratory protection for personnel who must work in IDLH atmospheres, such as oil drilling and the manufacture and handling of certain chemicals. When connected to a respirable air source, these devices permit the wearer to work and move about freely, within the limits of the approved hose length. (MSA Air-Supply Hose must be used to maintain NIOSH approval). The units are equipped with a small air cylinder, which enables the wearer to escape from dangerous atmospheres if the primary air supply is interrupted.

The units serve as long-duration work devices and as escape devices. They are approved for respiratory protection for entry into, for extended periods of work in, and for escape from IDLH atmospheres. If used for entry into IDLH atmospheres, the air-line must be connected before entry. The self-contained air supply is approved for escape only.

MSA

Description

Operation of the Hip-Air and Combination Pressure-Demand Breathing Apparatus is manual. Each is an approved, rated five-minute escape device. The pressure-demand air-line respirator assembly is connected by an approved air-supply hose to a primary respirable air source; the worker breathes from this source with the valve of the egress cylinder of the device turned off until the user is ready to leave the working area. The user can leave, connected to the primary air source, or can open the egress cylinder valve and have approximately five minutes' respiratory protection. When breathing from the air cylinder, the user can remain connected to the primary air supply and exit, or can disconnect from the air source for easier escape. If the primary air supply source should fail for any reason, the worker can switch to the egress cylinder by turning a valve and escape to a safe atmosphere.

The Combination Pressure-Demand Breathing Apparatus features a lightweight shoulder harness, which is foam-padded for extra comfort, and a waist belt with a seat-belt-type buckle. The handwheel of the cylinder valve is easy to grasp and operate. A short length of neoprene hose makes it easy to connect and disconnect the air-supply hose.

The Hip-Air Breathing Apparatus is designed for proper weight balance; the cylinder valve and pressure reducer are on the right side, and the belt-mounted pressure-demand regulator is positioned on the left side. The cylinder is connected to the regulator by a small length of neoprene air-supply hose, which rests on the wearer's lower back, completely out of the way. One end of the hose attaches to the pressure regulator coming off the cylinder and the other to the top of a two-inlet manifold which leads directly to the regulator. The bottom inlet is equipped with a quick-disconnect device to attach the air-line to the unit; it's available with Snap-Tite, Foster, Hansen, or Duff-Norton quick-disconnect. The cylinder valve is positioned on the front side of the cylinder so the wearer can simply tilt the cylinder to read the gauge easily.

Also available is a Dual-Supply Hip-Air Breathing Apparatus. Dual-Supply increases mobility, because workers do not need to remain tethered to a single air-supply hose throughout the work period. With dual-supply capability, users can connect from one pressurized continuous air source to another without losing continuity of air flow. When the first length of air-supply hose has reached its limit, the wearer simply plugs into a second approved air source and disconnects from the first. This technique is known as "leap-frogging," because it gives workers the ability to move from station to station without disrupting the supply of air.

Components

The Hip-Air Breathing Apparatus is made up of the following components: a full- or half-mask facepiece and breathing tube assembly, pressure-demand regulator, two-inlet manifold with quick-disconnect socket assembly, high-pressure hose assembly, 8.7 cubic-foot escape cylinder, carrier and harness assembly, and MSA air-supply hose. Except for the two-inlet manifold, the Combination Pressure-Demand Breathing Apparatus uses the same components as the Hip-Air unit. On the Combination Unit, the air-supply hose attaches to the apparatus via an 8-inch extension hose.

Facepiece and Breathing Tube Assembly

Hip-Air Breathing Apparatus users can choose from two full- and two half-mask pressure-demand facepiece styles. Full facepieces are the state-of-the-art, wide-vision, Ultra Elite Facepiece and the proven Ultravue Facepiece with wrap-around lens.

Facepieces, from left to right: Comfo®, Welder's Comfo®, Ultravue® and Ultra Elite®

Designed to provide exceptional peripheral and downward vision, the Ultra Elite Facepiece is available in three sizes and in a choice of two materials: silicone or Hycar rubber. Hycar rubber provides a super-soft facepiece texture for a smooth and comfortable fit. It resists chemical attack and temperature extremes and

withstands rugged day-to-day use without tearing.

The design of the Ultra Elite Facepiece is based on extensive anthropometric studies of the face-length, temple-width and chin-width data from more than 8,000 individuals. The result is a facepiece that provides improved seals against a wide range of facial contours. Ultra Elite Facepieces are available in small, medium, and large sizes and two materials: black Hycar rubber and black silicone with either an E-Z Don or a rubber head harness.

To accommodate a wide range of applications, Ultravue Facepieces are available in black and green Hycar rubber, and black and yellow silicone. The Ultravue Facepiece also comes in three sizes and is color-coded to size. The small Ultravue Facepiece has a gray lens ring, the medium has a black ring, and the large is colored gold.

MSA also offers optional nosecups (two sizes for Ultra Elite Facepieces and three sizes for Ultravue Facepieces) to reduce fogging when working in subfreezing temperatures. The NIOSH/MSHA certifications of the Hip-Air apparatus require that a nosecup be used at temperatures below 32 degrees F.

The Comfo and Comfo Elite pressure-demand half-mask facepieces are used where eye protection is not required. The Comfo style is formulated from SoftFeel® material, which improves the pliability and softness of both Hycar and silicone rubber. The Comfo Elite style facepiece (available only in silicone) has a unique sealing surface designed to reduce facepiece slippage.

A Welder's Comfo Facepiece is also available. This half-mask has an elbow that permits the breathing tube to be carried over the shoulder where it won't interfere with a welder's helmet. A web harness with a leather keeper holds the breathing tube in place.

The Breathing Tube used with the above pressure-demand facepieces is designed to resist crushing and pinching. It is made of synthetic rubber polymer, which is durable and resists chemicals. It has numerous corrugations along the length of the tube that allow it to stretch for free head movement.

Regulator with Quick-Disconnect Assembly

The pressure-demand regulator for the Hip-Air and Combination Respirators is constructed of high-strength anodized aluminum for durability and ruggedness. A stainless steel spring on the diaphragm of the pressure-demand regulator maintains air flow at a minimum of 1.0 inches of water positive pressure to the facepiece. Flow stops during exhalation when the pressure-demand exhalation valve opens at approximately 1.5 inches of water positive pressure.

Belt-mounted regulator

The regulator on the Hip-Air unit uses an integral belt clip that can be easily adjusted along the support belt for comfortable positioning. Construction of the regulator is simple. It has no O-rings and only four moving parts. By employing the latest in engineering advances, MSA keeps the regulator simple for reliability and ease of maintenance.

The Hip-Air and Combination Breathing Apparatus come equipped with male and female quick-disconnect fittings (Snap-Tite, Foster, Hansen, or Duff-Norton). (See Ordering Information on page 6.)

The two-inlet manifold on the Hip-Air unit connects both the high-pressure hose from the escape cylinder and the air-supply hose from a separate air source to the regulator. In normal use, the apparatus operates on the same principle as a pressure-demand air-line respirator. When connected to an air source, it provides continuous respiratory protection. In an emergency-escape situation, the user simply opens the cylinder valve to activate this portion of the apparatus. Should the primary air-supply fail or be interrupted, the cylinder provides an emergency source of air for escape from the dangerous atmosphere.

The user has a choice of two 8.7-cubic-feet egress cylinders (composite or aluminum) for the Hip-Air unit, or one (aluminum only) for the Combination unit. The egress cylinder used on either device has a 5-minute rated service life.

Quick-Disconnect Assemblies for Hip-Air & Combination Pressure-Demand Breathing Apparatus

Shown below are various quick-disconnect assemblies that can be used with Hip-Air and Combination Pressure-Demand Breathing Apparatus. Quick-disconnects are required to connect air-supply hoses to the regulator and to the air source. Additionally, locking-type quick-disconnects can be used to interconnect lengths of MSA Air-Supply Hose. Air-supply hoses can be interconnected up to a maximum length of 300 feet. Up to 12 sections of hose can be used to make up the maximum working length of hose.

Locking quick-disconnects easily connect by pushing the plug and socket together. To separate, the plug and socket must first be pushed together, and then the sleeve retracted from the plug.

Quick-Disconnects and Adapters

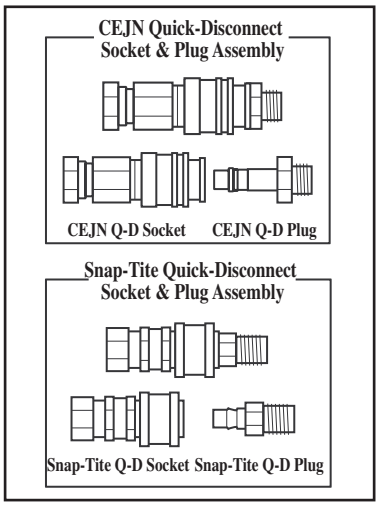
AL=Aluminum SST=Stainless Steel S=Steel BR=Brass

Quick-Disconnect Type	Female Socket ¼" NPT	Male Plug w/ Female ¼" NPT	Union Adapter ¼" NPT x ¾" UNF	Male Plug w/ Male ¼" NPT (used when connecting Inlet Pressure Gauge)	Female Socket Assem. (used to connect Air-Supply Hose to Male Plug on Respirator)
Snap-Tite (AL)	66272	66274	69542	66273	455019
Snap-Tite (SST)	629673	629672	808358	629671	471778
Snap-Tite (BR)	630305	630307	69542	630306	471777
Duff-Norton (BR)	630308	630310	69542	630309	471780
Hansen (SST)	628768	628208	808358	473502	471779
Hansen (BR)	630311	630313	69542	630312	471501
Foster (S)	628770	55716	69542	56549	467044
Foster (SST)	636459	636460	808358	636461	801016
Foster (BR)	629980	629981	69542	473501	470194
CEJN Locking (Chrome-plated BR)	631870	479026	69542	479020	479001
CEJN Locking (Chrome)	—	479026	69542	479020	476956
Snap-Tite Locking (AL)	—	479027	69542	479021	479032
Snap-Tite Locking (SST)	—	479028	808358	479022	479033
Snap-Tite Locking (BR)	—	479029	69542	479023	479034
Foster Locking (SST)	636473	637851	808358	—	800805

Locking Quick-Disconnects

Locking quick-disconnects must be used to interconnect lengths of MSA Air-Supply Hose. For most systems, you can use up to 12 sections of hose to make up the maximum length.

Part No.	Description
479009	CEJN Locking Quick-Disconnect Assembly, Socket and Plug (Chrome)
476956	CEJN Locking Female Quick-Disconnect Socket (Chrome)
476955	CEJN Locking Male (w/Male ¼" NPT) Quick-Disconnect Plug (Chrome)
479010	Snap-Tite Locking Quick-Disconnect Assembly, Socket and Plug (AL)
479032	Snap-Tite Locking Female Quick-Disconnect Socket (AL)
479015	Snap-Tite Locking Male (w/Male ¼" NPT) Quick-Disconnect Plug (AL)
479011	Snap-Tite Locking Quick-Disconnect Assembly, Socket and Plug (SST)
479033	Snap-Tite Locking Female Quick-Disconnect Socket (SST)
479016	Snap-Tite Locking Male (w/Male ¼" NPT) Quick-Disconnect Plug (SST)



Carrier and Harness
The Hip-Air Breathing Apparatus features a lightweight two-inch-wide shoulder harness, which is padded and covered in Nomex. The waist belt is either nylon or Nomex and has a push-button seat belt buckle. The cylinder carrier is adjustable on the full length of the belt. As an option, there's a urethane harness assembly.

The Combination Breathing Apparatus features a lightweight shoulder harness, which is foam-padded for extra comfort, and a waist belt with a seat-belt-type buckle. Both units are available with or without a carrying case.

Specifications

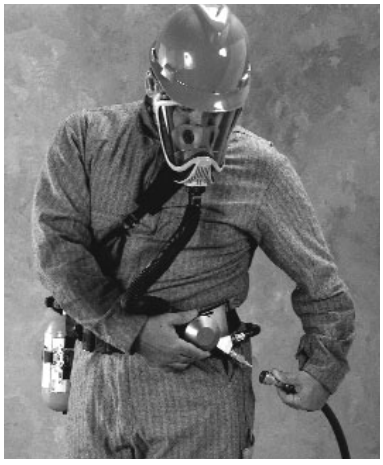
Operation:	Manual
Air-line respirator mode:	Pressure-demand
Air-line inlet pressure:	65–85 psig
Egress cylinder rated service life:	5 minute
Cylinder capacity:	8.7 cubic feet
Reduced cylinder pressure warning:	None
Approximate weight, apparatus only:	
	11 pounds (w/Composite cylinder)
	13 pounds (w/aluminum cylinder)
Approximate weight, including case:	
	17 pounds (w/Composite cylinder)
	19 pounds (w/aluminum cylinder)
Case dimensions:	22 x 6 x 13

Approvals and Standards

The Hip-Air and Combination Pressure-Demand Breathing Apparatus are jointly approved by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA)-Approval TC-13F-143-when the device is supplied with respirable air from either the small escape cylinder or from a primary compressed-air source; the approval requires that when connected to a primary air source, an air inlet pressure between 65 and 85 psig must be maintained through an approved hose length of between 8 and 300 feet. The approval requires that the compressed-air cylinder be fully charged with air conforming to at least Grade D of Compressed Gas Association Commodity Specification for Air, G-7-1, ANSI Standard Z86.1-1973; use limited to temperatures above -25 degrees F.

Escape Procedure Using the Hip-Air Breathing Apparatus

1. Wearer opens egress cylinder valve;



2. If desired, disconnects from the primary air supply; and

3. Leaves the dangerous atmosphere.

Service Life

The Hip-Air and Combination Pressure-Demand Breathing Apparatus have a NIOSH-rated service life of five minutes when used as escape devices. NIOSH approvals for duration of use are based on tests conducted by NIOSH. The Hip-Air and Combination Breathing Apparatus were tested at a use rate of 40 liters per minute using a breathing machine, and found able to supply air for the rated service life, or longer. However, work performed by an actual user may be more or less strenuous than the test procedure, and this will affect service life. During extreme exertion, service life may be reduced by as much as 50 percent. Service duration of the unit depends upon such factors as:

- The degree of physical activity by the user
- The physical condition of the user
- Emotional conditions such as fear or excitement, which may increase the user's breathing rate
- The degree of training or experience the user has had with such equipment
- Whether or not the cylinder is fully charged at the beginning of use
- Possible presence of carbon dioxide (CO_2) in the compressed-air supply at levels greater than found in Grade D air
- Atmospheric pressure (If used in a pressurized tunnel or caisson, at two atmospheres-15 psig gauge, the duration will be one-half as long; at three atmospheres, duration will be one-third as long.)
- Condition of the apparatus

Ordering Information

Complete Assemblies

Socket Assembly	Carrying Case	Hip-Air Breathing Apparatus w/Aluminum Cyls. Medium Black Ultra Elite Facepiece	Hip-Air Breathing Apparatus w/Aluminum Cyls. Medium Black Ultravue Facepiece	Hip-Air Breathing Apparatus w/Composite Cyls. Medium Black Ultra Elite Facepiece	Hip-Air Breathing Apparatus w/Composite Cyls. Medium Black Ultravue Facepiece	Hip-Air Dual-Supply Breathing Apparatus w/Composite Cylinders Medium Black Ultravue Facepiece	Comb. Press. Demand Breathing Apparatus w/Aluminum Cyls. Medium Black Ultra Elite Facepiece	Comb. Press. Demand Breathing Apparatus w/Aluminum Cyls. Medium Black Ultravue Facepiece
Foster (brass)	yes	10001766	10001758	811832	487166	—	10002129	10002120
Foster (brass)	no	10001750	10001696	811695	487150	—	10002101	10002093
Foster (steel)	yes	10001767	10001759	811833	487167	485534	—	10002121
Foster (steel)	no	10001751	10001697	811696	487151	485527	—	10002092
Snap-Tite (aluminum)	yes	10001768	10001760	811835	487169	—	10002131	10002122
Snap-Tite (aluminum)	no	10001752	10001698	811698	487153	—	10002103	10002094
Snap-Tite (brass)	yes	10001769	10001761	811836	487170	—	10002132	10002123
Snap-Tite (brass)	no	10001753	10001699	811699	487154	—	10002104	10002095
Snap-Tite (stainless steel)	yes	10001770	10001762	811837	487171	—	10002133	10002124
Snap-Tite (stainless steel)	no	10001754	10001700	811750	487155	—	10002105	10002096
Hansen (brass)	yes	10001771	10001763	811838	487172	485535	10002134	10002125
Hansen (brass)	no	10001755	10001701	811751	487156	485528	10002106	10002097
Hansen (stainless steel)	yes	10001772	10001764	811839	487173	—	10002135	10002126
Hansen (stainless steel)	no	10001756	10001702	811752	487157	—	10002107	10002098
Duff-Norton (brass)	yes	811826	474961	811840	487174	—	—	—
Duff-Norton (brass)	no	811689	484952	811753	487158	—	—	—
Less Fittings	yes	10001773	10001765	488387	—	—	10002136	10002127
Less Fittings	no	10001757	10001703	—	—	—	10002108	10002099

Comfo Half-Mask Pressure-Demand Facepieces

Size	Black Hycar	Green Hycar	Yellow Silicone	Black Silicone	Headband
Small	473460	473461	474818	479635	Elastic
Medium	473458	473459	474817	479630	Elastic
Large	473462	473463	474819	479640	Elastic
Small	479636	479637	479638	479639	Cradle
Medium	479631	479632	479633	479634	Cradle
Large	479641	479642	479643	479644	Cradle

Welder's Comfo Half-Mask Pressure-Demand Facepieces**

Size	Black Hycar	Green Hycar	Yellow Silicone	Black Silicone	Headband
Small	473453	473454	474875	479813	Elastic
Medium	473451	473452	474874	479808	Elastic
Large	473455	473456	474876	479818	Elastic
Small	479814	479815	479816	479817	Cradle
Medium	479809	479810	479811	479812	Cradle
Large	479819	479820	479821	479822	Cradle

Comfo Elite Half-Mask Pressure-Demand Facepiece

(Cradle Headband is standard)

Size	Black Hycar	Green Hycar	Yellow Silicone	Black Silicone
Small	490822	490823	490824	490825
Medium	490818	490819	490820	490821
Large	490826	490827	490828	490829

Welder's Comfo Elite Half-Mask Pressure-Demand Facepiece**

(Cradle Headband is standard)

Size	Black Hycar	Green Hycar	Yellow Silicone	Black Silicone
Small	490801	490802	490803	490804
Medium	490797	490798	490799	490800
Large	490805	490806	490807	490808

***Note: Breathing Tube Harness (P/N 78362) must also be used with the Pressure Demand Welder's Comfo and Comfo Elite Facepieces.*

Pressure-Demand Ultra Elite Full Facepiece

Size	Black Hycar	Black Silicone	Head Harness	Nosecup
Small	491524	491526	E-Z Don	Yes
	493271	493303	Rubber	Yes
	491525	491527	E-Z Don	No
	493278	493310	Rubber	No
Medium	491520	491522	E-Z Don	Yes
	493151	493183	Rubber	Yes
	491521	491523	E-Z Don	No
	493158	493190	Rubber	No
Large	491528	491530	E-Z Don	Yes
	493391	493423	Rubber	Yes
	491529	491531	E-Z Don	No
	493398	493430	Rubber	No

Pressure-Demand Ultravue Full Facepiece

(5-point rubber head harness standard, less nosecup)

Size	Black Hycar	Green Hycar	Yellow Silicone	Black Silicone
Small	471371	471372	479774	479773
Medium	471369	471370	479772	471771
Large	471374	471373	479776	479775

Replacement Air Cylinders

Description	Part No.
Aluminum	818159
Composite, 8.7-cubic-foot capacity, complete with valve, for use only with Hip-Air Apparatus	485565

Accessories

Air-Supply Hose

The MSA 3/8-inch ID Air-Supply Hose is available in smooth, reinforced, lightweight polyvinylchloride; chemical-resistant black neoprene; and smooth, coiled nylon. An MSA hose must be used to maintain NIOSH/MSHA approvals.

Hose/Breathing Tube Cover

Part No.	Description
696014	Hose/breathing tube cover

Neoprene

Part No.	Length	Fitting
455022	50 ft.	Brass
481080	50 ft.	Stainless Steel
455021	25 ft.	Brass
481079	25 ft.	Stainless Steel
455020	15 ft.	Brass
481078	15 ft.	Stainless Steel
481071	8 ft.	Brass
481077	8 ft.	Stainless Steel

PVC

Part No.	Length	Fitting
484225	100 ft.	Brass
471513	50 ft.	Brass
481060	50 ft.	Stainless Steel
471512	25 ft.	Brass
481059	25 ft.	Stainless Steel
471511	15 ft.	Brass
481058	15 ft.	Stainless Steel
481051	8 ft.	Brass
481057	8 ft.	Stainless Steel

Coiled Nylon

Part No.	Length	Fitting
474043	50 ft.	Brass
491515	25 ft.	Brass
491514	15 ft.	Brass
491513	8 ft.	Brass

Welder's Adapter

For eye protection in welding applications where respiratory protection is required, a welder's adapter can be easily installed over an Ultravue Facepiece lens. The clip-on style adapter can be easily removed if needed, whereas the integral adapter model is used in place of the facepiece lens. Both models are made of polycarbonate and feature a flip-up lens with large 4½" x 5¼" (11.4 cm x 13.3 cm) vision area.

Part No.	Description
472859	Clip-on Welder's Adapter for Ultravue Facepiece, complete with cover lens, less filter plate (see below)
470786	Integral Welder's Adapter for Ultravue Facepiece, complete with cover lens, less filter plate

Heat-Treated Rayfoe™ Filter Plates with Cover Lens

Part No.	Description
38346	Shade 6
38347	Shade 10
38277	Shade 12
38348	Shade 14

Online Response® Respirator Selector

Available on the Internet at www.MSAnet.com/response/

- Helps identify the proper respirator you need
- Has broadest range of respiratory protective devices available
- Recommends respirators for more than 700 chemical hazards
- Has nearly 3,000 chemical synonyms
- Lists up to 27 categories of respirators, with MUCs
- Is generic in nature

Spectacle Kit

For use by workers who must wear corrective lenses, the spectacle kit can be easily inserted into an Ultra Elite or Ultravue Facepiece. The kit includes a wire support, rubber guide, and one pair of metal frame spectacles. Desired adjustment is obtained by moving the spectacles in and out of the rubber guide and by moving the rubber guide up and down the wire support. One size of spectacle frame is used (S-7 shape, 44-mm lens size) with Universal Bridge Corrective Lenses that can be obtained from local sources. The spectacle kit may be worn in conjunction with a nosecup.

Part No.	Description
804638	Ultra Elite Spectacle Kit (side wire support)
493581	Ultra Elite Spectacle Kit (center support)
454819	Ultravue Facepiece Spectacle Kit

Lens Covers

Lens covers, available in a variety of types, provide a convenient way to add a layer of protection against scratches. The self-adhesive covers can be easily installed and removed when necessary. The tinted versions are intended for applications in direct sunlight.

Part No.	Description
491500	Ultra Elite clear cover lens (25 per pack)
805456	Ultra Elite smoke-tinted cover lens (25 per pack)
494254	Ultravue smoke-tinted cover lens (6 per pack)
480326	Ultravue smoke-tinted cover lens (25 per pack)
494255	Ultravue mirror-reflective cover lens (6 per pack)
494256	Ultravue yellow-tinted cover lens (6 per pack)
456975	Ultravue clear cover lens (25 per pack)

QuadAire™ Four-Person Pressure-Demand Compressor

The QuadAire Compressor provides air at the proper pressure and volume for up to four air-line respirator users. A high-capacity, pressure-demand system, it is suitable for HazMat, asbestos abatement, chemical, petrochemical, and shipbuilding environments. The unit, which weighs approximately 250 pounds, utilizes a compressor design that is completely oil-free. The QuadAire has a rated output capacity of 8 CFM.

Part No.	Description
487688	Complete Compressor Assembly (110 volts), less quick-disconnects (must be ordered separately)

Nosecups

Molded from a soft rubber compound that is resistant to facial oils, the optional nosecup helps reduce the possibility of lens fogging. The nosecup is particularly effective in conditions of high humidity and/or low temperatures by inhibiting contact of the moist exhalation with the facepiece lens. A nosecup can be easily affixed to the facepiece without tools, and any size nosecup may be installed in any size Ultra Elite or Ultravue Facepiece, resulting in a customized facepiece for more comfortable use.

Part No.	Description
810412	Medium gray nosecup for Ultra Elite Facepiece
810413	Large gray nosecup for Ultra Elite Facepiece
471710	Small nosecup for Ultravue Facepiece
471711	Medium nosecup for Ultravue Facepiece
471712	Large nosecup for Ultravue Facepiece

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