

# INDIVIDUAL DISTRIBUTION CBRN

Filters and Systems



HDT offers a full range of collective protection CBRN systems and components for vehicles, vans and shelters – providing individual protection against CBRN agents when positive pressure cannot be maintained.

Individual distribution (ID) systems, also known as micro- or ventilated facepiece- collective protection systems, allow crews to breathe easier with more comfort than when using a conventional, unassisted air purifying respirator (APR).

Used when the air inside the vehicle is not purified, the HDT small filter unit supplies 3-4.5 CFM (5.1-7.7 m<sup>3</sup>/h) of purified air to each crew member's protective mask through CBRN-resistant hoses. The system eases the effort of breathing unassisted and reduces the discomfort of the mask by increasing the evaporation of facial perspiration.

HDT Individual Distribution systems have the lowest volume, weight and power consumption of any collective protection system.

## M8A3 Filtration System

The smallest CBRN system offered by HDT, the M8A3 provides 3-4.5 CFM (5.1-7.7 m<sup>3</sup>/h) of purified air for up to four crew members, with maximum airflow of 12 CFM (20.4 m<sup>3</sup>/h)

## M13A1 Filtration System

A 20 CFM (34 m<sup>3</sup>/h) filtration system utilizing two M18A1 gas filters (10 CFM, 17 m<sup>3</sup>/h) externally mounted to fan housing. The M13A1 also includes a 250-watt electric heater for each crew member's face mask. The M13A1 supplies air for up to five people.

## APPLICATIONS

- U.S. and allied military branches use ID systems as primary CBRN air filtration devices in vehicles unable to maintain overpressure and as secondary systems in positive-pressure protected vehicles.
- Originally designed for older vehicles such as M60 tanks, ID systems are currently installed in virtually all classes of combat and tactical vehicles, including: Abrams, Bradley, Paladin, M113 APC, M109, LAV, Stryker, HWMMV, and HETS.

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## Systems

### M8A3 12 CFM FILTRATION SYSTEM

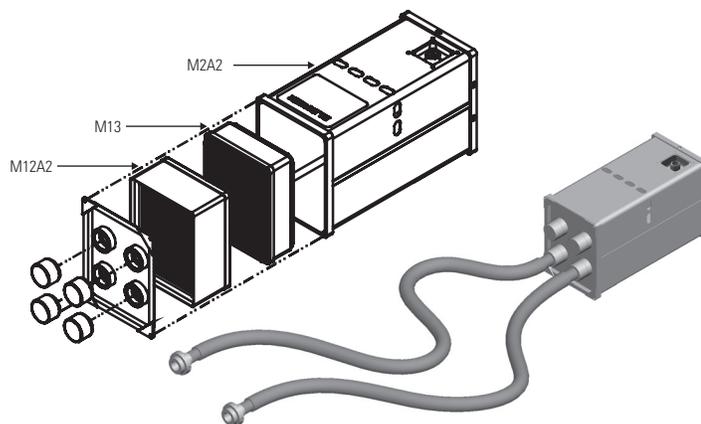
The M8A3 CBRN filtration system is used in vehicles that cannot be pressurized, or in those where operational mode requires open doors, such as an ambulance or the M88 recovery vehicle. The M8A3 system is the smallest and least expensive form of collective protection used by the military today.

A single filter unit supplies filtered air through hoses to crew members, providing individual protection against CBRN agents. The forced air converts the mask from negative pressure protection to positive pressure protection and provides enough air for breathing, defogging the mask lenses and compensating for irregularly-fitting masks.

The system consists of an M2A2 air purifier, hose assemblies and installation hardware. The M2A2 contains the blower, dust separator, gas and particulate filters and is mounted inside the vehicle. Contaminated air is pulled into the unit by a centrifugal fan and passed through a cyclonic dust separator to remove coarse particles. Then the air passes through two stages of filtration – an M13 particulate filter that removes toxic particles and aerosols at a 99.97% efficiency rate at 0.3 microns, and an M12A2 gas filter that removes gaseous contaminants from the air stream. Purified air is distributed individually to crew member masks through air supply hoses. The air distribution hose from the M8A3 is connected to the mask's CBRN filter through a quick disconnect coupling.

### KEY FEATURES:

- 12 CFM (20.4 m<sup>3</sup>/h) airflow with iris control valve
- Mounting frame and hardware
- Dust plugs
- 4 foot and 6 foot (1.2 m and 1.8 m) supply hoses are standard
- 2 foot and 9 foot (0.6 m and 2.7 m) supply hoses are optionally available



### M8A3 Specifications

HDT Part Number	5-19-1779	
NSN	4240-00-853-3201	
On GSA Contract		
<b>Rated Air Flow</b>	12 CFM	20.4 m <sup>3</sup> /h
<b>Power Requirements</b>		
Voltage		
AC	27.5 VAC	
DC	24 VDC	
Current (maximum)	5 Amps.	
<b>Dimensions (L x W x H)</b>	13" x 6" x 7.5"	33.02 x 15.24 x 19.05 cm
<b>Weight</b>	20.25 lbs	9.20 kg
<b>Housing material</b>	Steel CARC painted	

### M8A3 Components

Included Components	Qty	HDT Part #	NSN
M2A2 Air Purifier	1	5-19-1772	4240-00-868-7906
M12A2 Gas Filter (ASZM-TEDA)	1	5-19-2295	4240-01-365-0981
M13 Particulate (HEPA) Filter	1	5-19-853	4240-00-368-6291
Air Duct Hose Assembly 4' (1.2 m)	2	5-19-876-4	4720-00-060-2731
Air Duct Hose Assembly 6' (1.8 m)	2	5-19-876-2	4720-00-300-6465
Switch / Circuit Breaker Assembly	1	5-19-1757	1015-01-027-0980
Frame assembly	1	5-19-1754	4240-00-565-6059

### Available Components

Air Duct Hose Assembly 2' (0.6 m)	5-19-876-1	4720-00-060-2732
Air Duct Hose Assembly 9' (2.7 m)	5-19-876-3	4720-00-300-6464
Bracket (Improved Frame Assembly)	9363633	5340-01-278-1255
Dust Plugs (Aluminum)	665-100	N/A

Products, product specifications and data are subject to change without notice to improve reliability, function, and/or design. Please contact Customer Service at 800.969.8527 for the most up-to-date product information.

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## M13A1 20 CFM FILTRATION SYSTEM

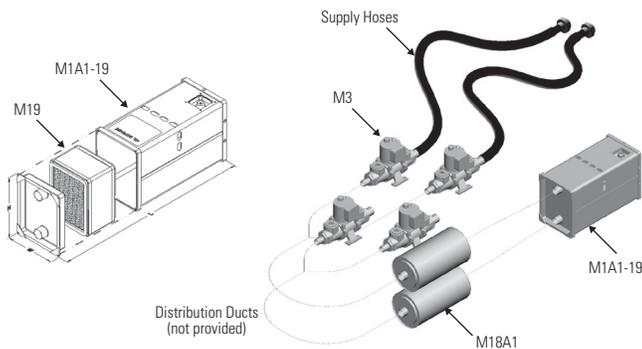
In use by the U.S. Army for over 30 years, the M13A1 CBRN filtration system is the larger of HDT's individual distribution systems. Used as a backup CBRN system in armored vehicles such as the M1A2 and as the primary system in vehicles where positive cabin pressure cannot be maintained (LAV, IFV and M109), each M13A1 provides purified air for up to five crew members when used in conjunction with protective masks. Multiple M13A1 filter systems may be used when more than five crew members require protection (Stryker).

The system consists of an M1A1-19 pre-cleaner and particulate filter assembly (which includes the blower, dust separator and particulate filter), M3 heaters, hose assemblies and installation hardware. Two M18A1 gas filters are used in conjunction with the main M1A1-19 unit.

The M13A1 system is mounted inside the vehicle. Contaminated air is pulled into the M1A1-19 pre-cleaner unit and passes through an M19 particulate filter which removes toxic particles and aerosols at a 99.97% efficiency rate at 0.3 microns. Then the air flows into the two M18A1 gas filters via a set of ducts (sold separately), and the purified air is distributed via a network of ducts and hoses (distribution ducts are sold separately) to the individual crew member. M3 250-watt heaters are located between the distribution duct and the supplied flexible supply air duct and warms the purified air to a comfortable level in cold weather operation. The air distribution hose from the M13A1 is connected to the mask CBRN filter through a quick disconnect coupling.

### KEY FEATURES:

- 20 CFM (34 m<sup>3</sup>/h) air flow with iris valve control
- Mounting frame and hardware included
- External M18A1 gas filter
- M3 electrical heaters
- 4 foot and 6 foot (1.2m and 1.8m) supply hoses standard
- 2 foot and 9 foot (0.6m and 2.7m) supply hoses are optional



### M13A1 Specifications

HDT Part Number	5-19-3051	
NSN	4240-00-964-9061	
On GSA Contract		
<b>Rated Air Flow</b>	20 CFM	34 m <sup>3</sup> /h
<b>Power Requirements</b>		
Voltage		
AC	24VAC	
DC	27.4 VDC	
Current (maximum)	5 Amps	
<b>Dimensions (L x W x H)</b>	13" x 6" x 7.5"	33.02 x 15.24 x 19.05 cm
<b>Weight</b>	15.75 lbs	7.16 kg
<b>Housing material</b>	Steel CARC painted	

### M13A1 Components

	Qty	HDT Part #	NSN
M1A1-19 Precleaner	1	5-19-2353	4240-01-026-3112
M18A1 Gas Filter (ASZM-TEDA)	2	5-19-2300	4240-01-365-0982
M19 Particulate (HEPA) Filter	1	5-19-1175	4240-00-866-1825
Air supply hoses 4' (1.2 m)	2	5-19-1893-30	4720-00-004-8248
Air supply hoses 6' (1.8 m)	2	5-19-1893-10	4720-00-004-8249
M3 Electric Air Heater	4	5-19-1782	4240-00-807-6856
M3 Inlet Adapter	4	5-19-1676-1	4730-00-808-5090
M3 Outlet Adapter	4	5-19-1676-2	4730-00-808-5089
Switch/circuit breaker assembly	1	5-19-1757	1015-01-0237-0980
Frame assembly	1	5-19-1754	4240-00-565-6059
Connector orifice assembly		5-19-1829	4240-00-007-9453

The M13A1 system is a collection of components to fit a specific configuration. Contact HDT for selecting your configuration.

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## Filters



### M12A2 GAS AND M13 PARTICULATE FILTERS

The M12A2 and M13 filters are the standard filters for the M8A3 CBRN filtration system. Used in series in the M2A2 air purifier portion of the filtration system, they are the smallest and lowest-flow combination filters used for CBRN collective protection. Contaminated air passes through the fan and dust separator to the M13 particulate filter, then through the M12A2 gas filter before being distributed to vehicle crew members through air supply hoses.

#### KEY FEATURES:

- M12A2 gas filter utilizes ASZM-TEDA 12x30 high-grade activated carbon to remove gaseous toxic agents from the air stream
- M13 particulate filter utilizes a glass microfiber media per U.S. Military Specification MIL-F-51079 to remove toxic particles, chemical agents in aerosol form, and biological matter at an efficiency rate of 99.97% at 0.3 microns
- 12CFM (20.4 m<sup>3</sup>/h) rated air flow
- Filters are sold separately and can be used independently of each other
- **Exceeds AEP-54 (Edition 2, October 2014) requirements**

### M18A1 10 CFM GAS FILTER

The M18A1 filter removes toxic chemical agents in vapor or gaseous forms. Used in conjunction with the M19 HEPA (Particulate) filter and the M1A1-19 blower system in the M13A1 filtration system, this canister filter is an ideal choice for collective protection and individual distribution needs. The 10 CFM (17 m<sup>3</sup>/h) gas filter is a radial flow filter canister that supports 2-3 crew members.

#### KEY FEATURES:

- Filter is a self-contained unit – replacement involves minimal exposure
- Filter flow is from the outer diameter of the filter bed, through the carbon bed, into the inner tube and out through the filter outlet
- Low pressure drop (1.7 IWG max.) across the filter
- Utilizes ASZM-TEDA, 12 x 30 activated carbon to remove gaseous toxic agents from the air
- Uses include Abrams M1A1 and M1A2 main battle tanks, Light Armored Vehicles (LAV) and many other tracked and wheeled military vehicles
- **Exceeds AEP-54 (Edition 2, October 2014) requirements**

### M19 PARTICULATE FILTER

The M19 filter is a panel-shaped filter within a steel container to provide filter integrity. One of the standard filters for the M13A1 filtration system, the M19 filter is housed within the M1A1 enclosure and utilizes a glass microfiber media per U.S. Military Specification MIL-F-51079 to remove toxic particles and chemical agents. Contaminated air passes through the fan and dust separator to the M19 particulate filter and finally through the M18A1 gas filters before being distributed to vehicle crew members through air supply hoses.

#### KEY FEATURES:

- 20 CFM (34 m<sup>3</sup>/h) rated air flow
- **Exceeds AEP-54 (Edition 2, October 2014) requirements**

M12A2 and M13 Specifications		
	M12A2	M13
HDT Part Number	5-19-2295	5-19-853
NSN	4240-01-365-0981	4240-00-368-6291
<b>Rated air flow</b>	12 CFM 20.4 m <sup>3</sup> /h	12 CFM 20.4 m <sup>3</sup> /h
<b>Airflow resistance</b>	2.0 IWG 498 Pa	0.8 IWG 200 Pa
<b>Dimensions (L x W x H)</b>	3" x 5.43" x 6.92" 7.62 x 13.8 x 17.6 cm	1.9" x 5.42" x 6.93" 4.826 x 13.8 x 17.6 cm
<b>Weight*</b>	3.2 lbs 1.45 kg	1.16 lbs 0.53 kg
<b>Housing material</b>	Steel	Steel

\* Weight may vary slightly due to carbon density and certain other factors

M18A1 Specifications		
HDT Part Number*	5-19-2300	
NSN**	4240-01-365-0982	
<b>Rated air flow</b>	10 CFM	17 m <sup>3</sup> /h
<b>Airflow resistance</b>	1.7" H <sub>2</sub> O	423 Pa
<b>Length (Body x Overall)</b>	9.5" x 11.15"	24 x 28.32 cm
<b>Diameters (Body x Inlet x Outlet)</b>	5" x 1.16" x 1.13"	12.7 x 2.95 x 2.87 cm
<b>Weight***</b>	3.75 lbs	1.70 kg
<b>Housing material</b>	Steel	

\* Order 5-19-2300 for a pack of two, 5-19-2300A for a single pack

\*\* NSN represents a pack of two, order 5-19-2300A for a single pack, no NSN

\*\*\* Weight may vary slightly due to carbon density and certain other factors

M19 Particulate Filter Specifications		
HDT Part Number	5-19-1175	
NSN	4240-00-866-1825	
<b>Rated air flow</b>	20 CFM	34 m <sup>3</sup> /h
<b>Airflow resistance</b>	0.8 IWG	200 Pa
<b>Dimensions (L x W x H)</b>	3.75" x 5.42" x 6.93"	9.5 x 13.8 x 17.6 cm
<b>Weight*</b>	2 lbs	0.9 kg
<b>Housing material</b>	Steel	

\* Weight may vary slightly due to carbon density and certain other factors

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