DRÄGER NBC COLLECTIVE PROTECTION SYSTEMS

Handout JPEO

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Dräger NBC Protection Systems

Fields of use

Fields of use NBC-Protection

- **Individual Protection (Masks & Filter)**

- **ColPro (collective protection) in Vehicles**

- **ColPro in Shelters**

- **Civil Devices**

- **Homeland Security**

and Detection
Dräger NBC Protection Systems
History / Cooperation with Piller

Dräger has experience in designing NBC protection systems since 1961. Since then Dräger had a strong cooperation with the company Piller in Osterode, Germany. Dräger produces the filter housings and the filters and Piller’s Division Schutzluft produces the blower for the NBC systems.

Since October 2003 the Piller Division Schutzluft was acquired by Dräger. This means that Dräger is able to develop, test, manufacture and service complete NBC systems from one source.
Dräger NBC Protection Systems

4x Dräger Filter Stages

- In Future acc. NATO AEP54

Contaminated Air → Purified Air

- Cyclone Filter 98% Performance
- Pre filter
- Particle filter Combined filter
- Gas filter

Type of particle:
- Dust
- Smoke
- Fog
- Haze
- Radioactive Particles
- Gas
- Pollen
- Bacteria
- Viruses
- Grime
- Fine Dust

Type of filter:
- Cyclone
- Pre Filter
- Particle Filter
- Activated Coal

μm: 1000 100 10 1 0.1 0.01 0.001 0.0001
Dräger NBC Protection Systems
NBC Unit / Technical Function

- Coarse Dust blow out
- Cyclone Filter
- Blower
- Changeover
- Contaminated Air
- Filtered Air
- Combined Gas- / Particle Filters

NBC-Protection-System
Howitzer PzH 2000
Dräger NBC Protection Systems

**NBC Unit / Existing Systems**

**Vehicle specific developments**

- **Particulate Matter Filter**
- **Gasfilter**
- **Combined Filter**

In order to overcome the resistance of the entire filter system a statically minimum pressure of 2,900 Pa is required in the Bundeswehr TL for the blower.

- **eg. NBC-Protection-System Leopard 2**
- **eg. NBC-Protection-System Howitzer PzH 2000**
Air Filtration Unit 60 cbm/h [AFU 60] (35 cfm)

- 1x F7 Pre-Filter
- Cyclone
- Blower
- Hatches
- 1x Combined Filter
  - HEPA
  - GAS
DRÄGER NBC COLLECTIVE PROTECTION SYSTEMS
STANDARD AFU 120

Air Filtration Unit 120 cbm/h [AFU 120] (70 cfm)

Cyclone

Blower

2x Combined Filter
- HEPA
- GAS
Air Filtration Unit 180 cbm/h [AFU 180] (106 cfm)

- Cyclone
- Filterbox
- Blower
- Hatch f. Filterexchange
- 3x Combined Filter (HEPA and GAS)
Dräger NBC Protection Systems
Example Installation outside TFA (KMW Dingo)
Applications AFU

Dingo 2  
Fuchs/Fox  
Kabine 2  
PzH 2000

Zivil
Fennek  
Kabine 2  
Leo 2

Portable

Airflow

17 cfm  
30 m³/h
35 cfm  
60 m³/h
70 cfm  
120 m³/h
106 cfm  
180 m³/h
212 cfm  
360 m³/h

to be continued...

All Dräger NBC Units are tested and approved according to the required specifications for units and filters by the German Military Institute for NBC (WIS-Munster)
Standard Device SBL 100 (M) (59 cfm)

Airflow: 100m³/h
To be installed outside or within TFA, due to double sealing leackage control
Dräger NBC Protection Systems
Example Installation within TFA (Hägglunds BV206)
Dräger NBC Protection Systems
NBC Unit / References

Applications SBL 100M

- Wiesel 2
- Container, eg FüInfoSys
- Duro 3/ Yak
- Puma

Airflow

<table>
<thead>
<tr>
<th>29 cfm</th>
<th>59 cfm</th>
<th>118 cfm</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 m³/h</td>
<td>100 m³/h</td>
<td>200 m³/h</td>
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All Dräger NBC Units are tested and approved according to the required specifications for units and filters by the German Military Institute for NBC (WIS-Munster)

to be continued...
Dräger NBC Protection Systems
NBC Unit / Tent Systems
**Gas:**
Dräger Safety Filters are approved according German Mil. Spec. TL 4240-045 and 4240-060 with following minimum ct-values:

<table>
<thead>
<tr>
<th>Agent</th>
<th>Test conc. (mg/m³)</th>
<th>Min. retardation time humid saturated coal 80% r.h. (min)</th>
<th>ct-value (mg x min / m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloropicrin</td>
<td>5.000</td>
<td>60</td>
<td>300.000</td>
</tr>
<tr>
<td>Chlorzyan</td>
<td>2.000</td>
<td>70</td>
<td>140.000</td>
</tr>
<tr>
<td>Hydr.acid</td>
<td>2.000</td>
<td>80</td>
<td>160.000</td>
</tr>
</tbody>
</table>

Furthermore our new filters will be approved according to NATO AEP54 for TIC’s and CWA’s Level: Desired (except for ethylene oxide, it’s required)

**Particle:**
Approved according to German Mil. Spec TL 4240-045 and 4240-060:
Performance: 99.997 %
In Future according to new German Mil. Spec requirements:
@ MPPS: 99,995 %
@ 1,1µm: 99,9999 %
Furthermore according to NATO AEP54
Dräger NBC Protection Systems

Accessories

- Control units
- Pressure gauges
- Filter recognition
- Pressure Drop Measurement
- Electronic pressure control
- Pressure relief valves
- Airflow meter
Dräger NBC Protection Systems
Production Activated Carbon Impregnation / AFU Assembly
NEW PRODUCTS
Development of a NATO NBC Protection System with following advantages:

- Low price
- Full Dräger Quality
- Low power consumption
- Small and flexible package dimensions
- including all required accessories
- Tailormade to specific customer requirements
- by customer depending assembly of „off the shelf“ parts
**NATO AFU 100**

**Base Version:**
- Pressure Unit up to 15 mbar (5.85 in WC)
- Unit&Filter acc. AEP54
- 105 cbm/h ABC (=62 cfm)
- 200 cbm/h Vent. (=118 cfm)
- < 15A @ 28V (420 W)
- Coarse dust extr. 95%
- 2 separate boxes
- Weight <35kg (=77.1 lb)
- HEPA=Pre-Filter, 24h @ 200cbm, 1g/cbm
- Separate Gas-Filter

**Options:**
- Unit&Filter acc. German BW TL
- Gasfilter bypass 5sec
- Filter recognition
- Pressure Drop Part Filter
- Air Flow control
- Installation within TFA
- Filter exchange free of cont.
NATO AFU 100

Accessories:
- Electr. Pressure control
- with integrated Control Unit
- Flexible Pressure Relief Valve (1-15mbar (5,85 in WC), 50-250cbm/h (29,5-147 cfm))
- CO Catalyst
- Combined NBC & Aircondition
- One way valves
- Hoses, Clamps
- Shock absorber
- Mounting Material
Dräger NBC Protection Systems
NEW PRODUCT NATO AFU100

755 (463+292) = 29.7 in
359 = 14.1 in
394 = 15.5 in
Dräger NBC Protection Systems
NEW PRODUCT NATO AFU100

Hepa- and Pre-Filter

300
11,8 in

49
1,9 in

300
Dräger NBC Protection Systems
NEW PRODUCT NATO AFU100

Gas-Filter

Ø 295 (11,6 in)

260
10,2 in

Handle
Dräger NBC Protection Systems
NEW PRODUCT NATO AFU100
Dräger NBC Protection Systems
NEW PRODUCT NATO AFU100
Standard Filter 100 cfm (170 cbm)

according to
- NATO AEP54
- with removable (exchangable) Pre-Dust-Filter

M48A1
100-cfm CBRN Filter Canister
NSN: 4240-01-363-1311

Application Statement
A self-contained filter, with both the gas and particulate filter elements integrated in one canister.

Features:
- 100-cfm airflow
- Self-contained canister
- A5ZM-TECA carbon media
- Modularity allows for multiple filter applications
- Horizontal or vertical installation

General Product Description:
The M48A1 CBRN filter canister is the most versatile and easy to use CBRN filter in wide use by the U.S. Military and its allies today. Its 100-cfm medium airflow rating and its modularity make it ideal for positive pressure systems in vehicles, vans, and mobile shelters. Tested, qualified, and field proven, the M48A1 filter set is currently used in a variety of applications, including the M1 Abrams tank, the M2A3 Bradley, the C2V, and the CBFS. The M48A1 is also the filter employed on the M53 filter system used on HAWK/V-mouted command and control type shelters like the S788.
Dräger NBC Protection Systems
NEW PRODUCT M48EP
Thank you very much for your attention!