

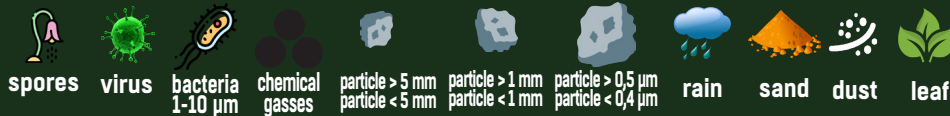


AMERICAN
FIRE AND SAFETY SOLUTIONS

CBRN FILTRATION SYSTEMS

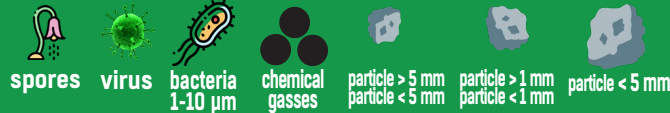
CBRN SYSTEM OPERATION FLOW CHART

CHIMNEY



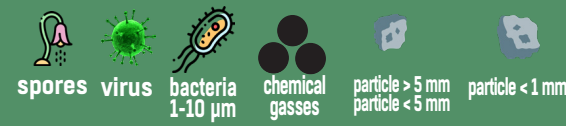
Outturn	P Pressure Loss	Particle Filter	Chemical Filter
%99 <@ 5 mm	200 pa	< 5 mm	< 5 mm drop-let

CYCLONE FILTER



%99 <@ 1 mm	180 pa	< 1 mm	< 1 mm drop-let
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FRONT FILTER



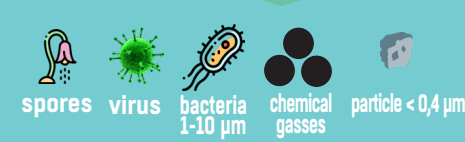
%99 <@ 0,5 mm	70 pa	< 0,5 mm	
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FAN

pressure capacity > 1500 pa
@170 m3/h

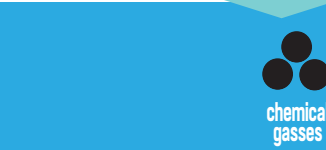
Flow rate capacity > 20 m3/h
1200 m3/h

PARTICLE FILTER



%99 @ 4µm	200 pa	< 0,5 mm	
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GF 90 FILTER



300 pa	%99 @ AEP 54 all gases		
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PLASM FILTER



CBRN Filters that AFSS Industry produces by domestic and national resources, have been tested by real war agents as per NATO AEP 54 standards by international and local test institutions and have been successful at these tests.

proqares

Nero Industries
Attn. Mr. Varan
İkitelli Organize Sanayi Bölgesi Fatih Sanayi Sitesi 4B Blok No:3
34490 Basaksehir / Istanbul
Turkey

Subject: COLPRO / AEP54, adsorption capacity experiments
Your reference: AEP54
Contact person: M. de Jonge

Dear Mr. Varan,

At the request of Nero Industries (your reference AEP54) ProQares performed gas adsorption experiments on activated carbon according to the AEP-54 (Edition 2, October 2014) NATO Standard for colpro (collective protection) in a CBRN (chemical, biological, radiological and nuclear) environment. The aim of the investigation was to establish whether the carbon, when used in a colpro filter, will meet the stated requirements for the list of chemical warfare agents (CWA) and for the list of toxic industrial chemicals (TIC's). The details of the received samples are presented in Table 1. The sample was received September 2nd 2019, the experiments were performed between November 21st 2019 and February 19th 2020.

Table 1: Received samples

Sample code ProQares	Description by customer
19 POA 1716	Nero Industries Activated Carbon 12*30 Mesh NR-MARS-001

Lange Kleiweg 137
P.O. Box 83
2280 AB Rijswijk
The Netherlands

www.proqares.com

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info@proqares.com

Date 20-2-2020
Page 1 of 6

Ref.No.: 72168
Doc.no: 78746

TETRAK MAM
TÜRKİYE BİLİMSEL VE TEKNOLOJİK ARAŞTIRMA KURUMU
MARMARA ARAŞTIRMA MERKEZİ
MALZEME ENSTİTÜSÜ

P.K.21, 41470 GEBZE – KOCAELİ
T 0 262 877 20 00 F 0 262 641 23 09
http://www.tubitak.mam.gov.tr

ANALİZ RAPORU
(Endüstriyel Teknik Destek Hizmeti)

Rapor no : 20664700-125.05- 86/1009
Rapor tarihi : 9. 2. 21
Talep eden : NERO ENDÜSTRİ SAVUNMA SANAYİ A.Ş.

Adres : AOSB 30 Ağustos Cad. No:18 Maliköy, Sincan/ Ankara/ Türkiye

Konusu : Aktif Karbon ve KBRN Koruyucu Filtrenin AEP 54 Uygunluk Raporu
Bu raporda yer alan sonuçlar, sadece incelenen numunelere aittir.

Onaylayan

Dr. Özgür DÜYGÜLU
Malzeme Enstitüsü Endüstriyel Hizmet Sorumlusu

Bu rapor ve sonuçları talepte bulunan kuruluş ve müşterilerine icar ve reklam amaçları ile kullanılamaz. Rapor tamamı veya kısmen çoğaltılamaz/yayınlanamaz.

Raporla (*) ilgili analizler ayrılmış edilmir.

İnceleme tarihi: raporun kapanış tarihi.

Bu rapor 7 sayfa olup, 2 sayfa (1 sayfa müşteriye, 1 sayfa Enstitü arşivine) olarak hazırlanmıştır.

Sayfa 1/7



CBRN FILTER GENERAL SPECIFICATIONS

Conformant to NATO AEP54 standards

It provides safety of the crew against chemical, biological, nuclear and radiological attacks which are today's war methods.

Special filtration by Hepa and Carbon filters

10 years of packed shelf life

10 years of packed shelf life

Usage period of 1 to 12 months for daily uses

The filters produced as per NATO AEP54 standard can filter gases such as sarin, soman which are described as war gases

Air flow rate between 20 m³/h and 300 m³/h

Filtration of coarse particles by fixing front filter

90-180 Minutes of war agent filtration period

Packaging as per MIL - PRF 131 standard


Particle filtration up to 0,3 millimeter








GF-90 FILTER

 Air Flow Rate
90 m3/h

 Storage Period
10 Years / between 20-40 °C

 Local Outturn %
99.97 / 99.97

 Weight
23 lbs / 10,5 kgs(+0,5kg)


 Dimensions (length x diameter)
11,8" x 5,20"
300 x 132 mm


NSN: 4240-27-062-0954
TSK NSN: 4240-KK-020-9189



CV-90 COMPATIBLE GAS FILTER

 Air Flow Rate
170 m3/h

 Storage Period
10 Years / between 20-40 °C

 Local Outturn %
99.97 / 99.97

 Weight
37 lbs / 17 kgs(+0,8kg)


 Dimensions (length x diameter)
12,8" x 14,52"
325 x 369 mm

NSN: 4240-99-250-3437




NATO TYPE 1 FILTER

 Air Flow Rate
170 m3/h

 Storage Period
10 Years / between 20-40 °C

 Local Outturn %
99.97 / 99.97

 Weight
11 lbs / 17 kgs(+0,8kg)






 Dimensions (length x diameter)
12,44" x 13,77"
316 x 350 mm

NSN: 4240-99-176-1162

STANDARDS
NATO AEP54

CF-60 FILTER








-  Air Flow Rate
35 CFM / 60 m³/h
-  Air Flow Resistance
3 IWG / 750 Pa
-  Local Outturn %
99.97 / 99.97
-  Weight
11 lbs / 5.1 kg (±0.3 kg)
-  Dimensions (width x length x diameter)
9.05" x 14.45" x 4.10"
230mm x 367mm x 104mm

NSN: 4240-12-147-4791
NSN: 4240-27-052-4026

GF-20 GAS FILTER








-  Air Flow Rate
20.4 m³/h
-  Air Flow Resistance
0.8 IWG / 200 Pa
-  Local Outturn %
99.97 / 99.97
-  Weight
3 lbs / 1.6 kg (±0.2 kg)
-  Dimensions (width x length x diameter)
5.54" x 6.96" x 2.95"
138.5mm x 177mm x 75mm

NSN:4240-01-365-0981 / 4240-00-203-3999
NSN: 4240-27-068-4199

HF-20 PARTICLE FILTER



-  Air Flow Rate
35 CFM / 60 m³/h
-  Air Flow Resistance
0.8 IWG / 200 Pa
-  Local Outturn %
99.97 / 99.97
-  Weight
1.59 lbs / 0.710 kg (±0.1 kg)
-  Dimensions (width x length x diameter)
5.54" x 6.96" x 2.31"
138.5 X 177 X 58.8 mm

NSN: 4240-00-368-6291

STANDARDS
NATO AEP54





PRE FILTER

 Air Flow Rate
---m³/h

 Air Flow Resistance
0,81 IWG / 800 Pa

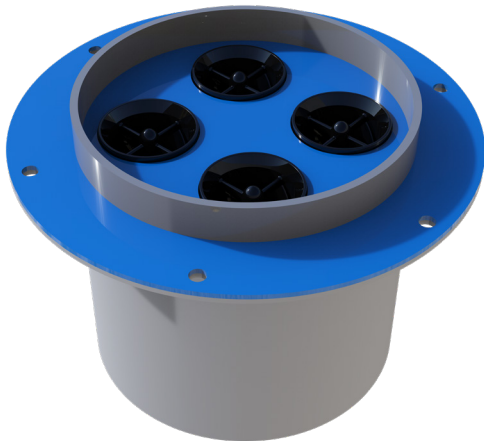
 Local Outturn %
99.97 / 99.97

 Weight
11 lbs / 0,9 kg (±0,1 kg)

 Dimensions (width x length x diameter)
0,37" x 0,54" x 0,69"
9,5 mm x 13,8 mm x 17,6 mm



CYCLONE FILTER

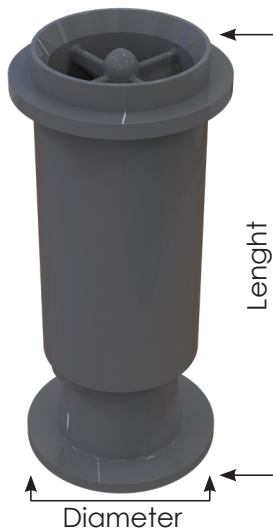


- On CBRN filtration system the dust particles within the drawn air are separated by giving "spin motion" (both circular and vertical motion) to air flow.
- When it is used before the filters, it extends the filter life.
- High capacities can be provided by parallel connection.

Cyclone filter separates the particles from the air by forcing the air with "spin method". The spinning air "pushes" solid particles to outer side of the air flow and provides the particles to fall outside the air flow and settle there. Cyclone collectors are generally used as separator for coarse dust from air flow and often as pre-cleaner before an efficient filter and/or a product separator.

The polluted air getting in from the entrance on upside of the cyclone with high speed, is forwarded to cyclone internal walls with centrifugal force of particles whose density is higher than the conveyer atmosphere, by giving it a helical flow form through cyclone construction.

Cyclones also reduces dust load reaching the filter by operating as first stage dust ejector before the filter on systems where dust load is high. By this means, it becomes possible to used filter unit more efficiently. These filters can be connected in series according to capacity calculations when it is necessary.



Filter Type	Filter Dimensions (diameterxsize)	Usage Type	Efficiency
Small Type	19mm x 66mm 0.75" x 2.6"	Single	92-96%
		Serial	95-99%
Wide Short Type	38mm x 102 mm 1.5" x 4"	Single	88-94%
		Serial	90-96%
Wide Long Type	38mm x 152 mm 1.5" x 6"	Single	92-95%
		Serial	96-98%



CBRN GAS MASKS

Protective mask, together with a suitable filtration system or respiration system, protects user's face, eyes and respiratory organs; against gaseous, vapourish and solid or liquid aerosol chemical, biological, radiological and nuclear (CBRN) agents. Protective mask is produced in universal dimensions. The structure of sealing side, provides perfect sealing for all face shapes and sizes of adult population except for extremely small faces. Inhalation rooms for filter connection are equipped with Rd 40x1 / 7 '' screw thread as per EN 148-1 standard (NATO standard).

ADVANTAGES

- All kinds of chemical, biological, radiological and nuclear agents, industrial toxic gases, riot control gases, etc.
- High user comfort
- Easy attach and removal
- Low breathing resistance
- Wide field of vision
- Protected visor against misting
- Corrective eyeglass application
- Easy decontamination and disinfection
- Easy liquid penetration (optional)
- Sweat drainage at exhalation chamber
- Compatibility with helmets and respiratory equipment
- High quality talk diaphragm, provides easy communication by using or not using communication devices.

FEATURES

Average weight	560 gr
Colour	Black
Effective field of vision	%77
Binoculars field of vision	%83
Filter connection thread	Rd 40x1/7''
Resistance against diffusion of NB agents	48 hours
Breathing resistance	
Breathing resistance at 30 lt/m	max. 25 Pa
Breathing resistance at 95 lt/m	max. 80 Pa
Exhalation resistance at 30 lt/m	max. 50 Pa

MASKED TYPE CBRN SYSTEMS










BM-80 MASKED TYPE FILTRATION

GF-90 Masked Type CBRN System designed and produced by AFSS engineers in accordance with MIL-STD-1472 requirements with an ergonomic structure as per standards such as NATO AEP-54, MIL-STD-810, MIL-STD-461.

Protection of the crew against chemical, biological, radiological and nuclear threats is provided by blowing adjustable fresh air filtrated by masks within the vehicle attached to private separate lines for each user with GF-90 Masked Type CBRN System which has 90m³/h air flow rate.

TECHNICAL SPECIFICATIONS

	It gives error when pressure difference is under the adjusted value.
	Pressure measurement has digital indicator.
	Shelf life: 10years
	Voltage Info: 16 -32 VDC
	Operation Temperature -30°C / +55°C
	Storage Temperature -40oC / +71oC
	90 m ³ /h Air Flow

STANDARDS

AEP-54	Collective Protection at CBRN Environment
MIL-C-38999	Military Connector
MIL-DTL-27500	Special Purpose, Electrical Shielded and Unshielded Wires
MIL-STD-461E	Unshielded Wires
MIL-STD-810G	Military Electromagnetic Compatibility



AR-MF 60 MASKED TYPE CBRN FILTRATION SYSTEM

AF-60 Masked Type CBRN System designed and produced by AFSS engineers in accordance with MIL-STD-1472 requirements with an ergonomic structure as per standards such as NATO AEP-54, MIL-STD-810, MIL-STD-461.

Protection of the crew against chemical, biological, radiological and nuclear threats is provided by blowing adjustable fresh air filtrated by masks within the vehicle attached to private separate lines for each user with AF-60 Masked Type CBRN System which has 60m³/h air flow rate. Gas and Particle filters in the system designed to be easily attached and removed, provides maximum speed during movement to hot zone.

TECHNICAL SPECIFICATIONS

Air Flow Rate	60m ³ /h (35cfm)
Operation Temperature	-32°C — +49°C
Storage Temperature	-40°C — +63°C
Operation Voltage	28V DC
Current	Max. 7,5A @ 24V DC
Weight	~25kg
Dimensions	330 x 370 x 440 mm (En x Derinlik x Yükseklik)
Filters	“HEPA” filter for particle filtration “Activated carbon” filter for gas filtration
Number of Crew To Be Protected	7 (optional)

POSITIVE PRESSURE CBRN SYSTEMS



TM-70 POSITIVE PRESSURE FILTRATION SYSTEM

Showing the difference between external pressure and internal pressure on the screen, it gives pressure information. External pressure info is delivered to the sensor within the unit via pneumatic hose and it shows the difference with internal pressure on the screen. It gives audio and visual warning under the adjusted pressure value. It has dimout, alarm muting, built-in test features. Requested pressure difference warning can be adjusted manually.

TECHNICAL SPECIFICATIONS

It gives error when pressure difference is below the adjusted value.	Shelf life: 10 years
High pressure is blown out the valve by the help of blast valve	Voltage Info: 16 – 32 VDC
Pressure measurement has analog indicator	Filtration Air Flow Rate: 80m3/h
As filtration mode and ventilation mode	Number of personnel to be protected: 4-12 Personnel
It can be used on 2 modes	Max. Operation Height is 3000 meters
Front Filter: is used for Coarse-Dust filtration	Operation Temperature -30°C / +55°C
Particle Filtration 99.97%	Storage Temperature -40°C / +71°C
Carbon Filtration: is used for Gas Filtration	















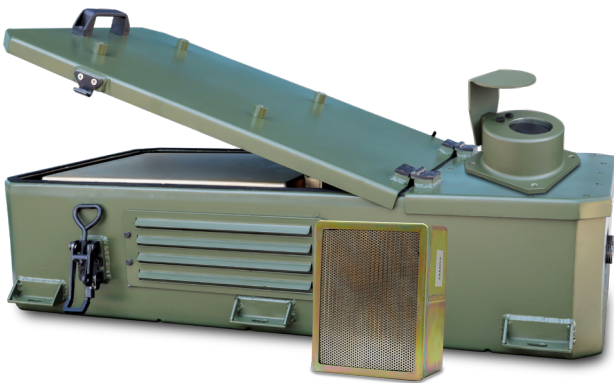
CV-90 POSITIVE PRESSURE FILTRATION SYSTEM

Showing the difference between external pressure and internal pressure on the screen, it gives pressure information.

External pressure info is delivered to the sensor within the unit via pneumatic hose and it shows the difference with internal pressure on the screen. It gives audio and visual warning under the adjusted pressure value. It has dimout, alarm muting, built-in test features. Requested pressure difference warning can be adjusted manually.

TECHNICAL SPECIFICATIONS









 It gives error when pressure difference is below the adjusted value.	 3 Stage Fan
 Digital Pressure Indicator	 Air Flow: 170m3/h (max)
 Shelf life: 10 years for each filter	 Combined Filter (Particle Filter + Activated Carbon Filter)
 Voltage Info: 20 – 32 VDC	 "No Filter" Warning
 Operation Temperature -32°C / +55°C	 "Filter Change" Warning
 Storage Temperature -40°C / +71°C	 "Fan Error Warning"



AROF-80 POSITIVE PRESSURE FILTRATION SYSTEM

UFT-80 is a modular CBRN fan filter mechanism / air filtration system. UFT – 80 designed for mobile applications, includes cassette type filter group which has feature of quick filter change. With advanced technology digital user interface intervention to system, system warning control and error detection can be performed instantly. It can provide up to 80 m3 /h (47 CFM) filtrated air within the area the personnel is situated.

TECHNICAL SPECIFICATIONS

 It gives error when pressure difference is below the adjusted value.	 Storage Temperature -40°C / +71°C
 Dimensions: 49x90x28 cm	 Voltage Info: 32 VDC
 Shelf life: 10 years for each filter	 Adjustable Blast Valve
 Operation Temperature -32oC / +55oC	 Air Flow: 80m3/h (max)