

ST53™

VERSATILE PROTECTION
FOR TACTICAL OPERATIONS



**Multi-Role Respiratory Protection
Equipment System**

AVON
PROTECTION

ST53™

VERSATILE PROTECTION
FOR TACTICAL OPERATIONS



Avon's revolutionary ST53™ multi-role Respiratory Protective Equipment (RPE) system has been developed specifically for specialist applications where the user needs to respond to changing operational conditions.

For the first time, the operational flexibility required by specialist users from their respiratory protection system is being offered in a purpose designed product. Depending on the threat or operational circumstances at the scene of an incident, ST53 can be configured to provide the required protection mode.

The ST53 combines Avon Protection Systems' FM53™ respirator (see FM53 datasheet for further details) with new and innovative modular breathing apparatus technology to provide positive pressure SCBA and/or PAPR capability. The ST53 system provides the operator with total flexibility to select the necessary level of protection quickly and efficiently while continuing to operate effectively. Designed with stealth applications in mind, the system incorporates non-reflective black components and a warning whistle which can be silenced.

ST53

The standard ST53 with full backframe offers 4.7 litre, 6.8 litre and 9 litre lightweight carbon cylinder options.

Cylinder Valve

ST53 CE variants include a nickel-plated brass cylinder valve with a locking or non-locking configuration, while NIOSH variants feature an anodized aluminum valve in a non-locking configuration only.

Cylinder Pressure Monitoring

The ST53 backframe option includes a remotely accessible, chest mounted pressure gauge for monitoring of pressure and an end-of-service whistle alarm that can be disabled (voids NIOSH and CE approvals) if required.

Compact Demand Valve (CDV)

The world's smallest, most compact chemically hardened demand valve provides constant positive pressure.

With the option to mount on either side of the respirator, it is unobtrusive and allows excellent integration with weapons and other personal equipment.

The CDV is attached to the respirator via the standard 40mm thread connection.

Cylinder Options

Options	Free Air Volume		Duration
	litres	cu.ft	
4.7 litre, 300 bar / 4500 psi / carbon wrapped	1269	45	30 minutes
6.8 litre, 300 bar / 4500 psi / carbon wrapped	1836	65	45 minutes
9.0 litre, 300 bar / 4500 psi / carbon wrapped	2430	86	60 minutes

Note: These are minimum durations based on the NIOSH & CE breathing rates of 40 litres per minute.

FM53



OPTION
A

CS-PAPR

The Avon CS-PAPR™ is the newest generation of CBRN Powered Air Purifying Respirator (PAPR) designed for use in Combination Unit Respirators (CUR). The capability to change levels of protection dependent on the threat now provides the wearer with increased duration on target and safer operation.

Utilizing the Avon MP-PAPR™ module along with the patented combination hose module, the wearer can seamlessly switch between APR, PAPR and SCBA modes of protection. The single air hose connection for all modes allows the wearer to retain a clear respirator cheek for optimum weapon sighting.

The low profile shape of the Avon CS-PAPR delivers best in class integration

OPTION
C

ACCESSORIES

FILTER OPTIONS

- The FM53 system includes a unique close fitting filter design, giving the user greater visibility and improved weapon sighting and ergonomics
- The Avon filter range provides protection from a wide range of CBRN hazards
- The lower inhalation resistance particulate filters can be used specifically for particulate challenges
- Filter mounted left or right side – 40mm standard NATO connection

OPTIONAL EXTRAS

- Emergency Breathing Safety System (EBSS), or “buddy breather”, allows two operators to share cylinder air for immediate egress in an emergency without disconnecting in an IDLH atmosphere
- Rapid Intervention Crew (RIC) fitting allows for emergency filling of a cylinder in operation
- Operator replaceable spare parts available; easy to maintain with access to key components
- A wide range of fully compatible accessories such as hydration canteens, communication connections, vision correction system, clear and sunlight outserts, and a range of storage and carry bags

COMMUNICATION

- For enhanced voice amplification, an optional Voice Projection Unit (VPU) with internal microphone can be connected via the Electronic Communication Port (ECP)
- Additional external communication systems can be attached via the ECP using an appropriate lead

OPTION B



with SCBA systems, benefiting the wearer with reduced weight and size compared to traditional systems.

The patented combination hose allows the user to switch modes in one simple action.

The Avon CS-PAPR is re-configurable to work as Avon EZAir™ or Avon MP-PAPR.

*The CS-PAPR is not NIOSH approved with an SCBA.

OPTION D

ST53SD

The short duration variant provides a belt or harness carry option with 1 and 2 litre cylinder options, meeting the needs of law enforcement and special forces for short-term tactical operations.

Cylinder Valve

The ST53SD™ includes a nickel-plated brass cylinder valve in the non-locking configuration.

Cylinder Pressure Monitoring

The ST53SD provides the option of a remote pressure gauge or a single pressure gauge attached directly to the regulator body.

Compact Demand Valve (CDV)

The world's smallest, most compact chemically hardened demand valve provides constant positive pressure.

With the option to mount on either side of the respirator, it is unobtrusive and allows excellent integration with weapons and other personal equipment.

The CDV is attached to the respirator via the standard 40mm thread connection.

Cylinder Options

Options	Free Air Volume	Duration
1.0 litre / 11 cu.ft carbon wrapped, 4500 psi	270 litres / 11 cu.ft	7 minutes
2.0 litre / 17 cu.ft carbon wrapped, 4500 psi	540 litres / 17 cu.ft	14 minutes

Note: These are minimum durations based on the NIOSH & CE breathing rates of 40 litres per minute.



ST53 Technical Data

Live Agent Permeation Performance

Challenge chemical	Requirements		Actual		Test agent	NIOSH CBRN requirements	Typical performance
	Max peak (mg/m3)	Max cumulative (mg-min/m3)	Max peak (mg/m3)	Max cumulative (mg-min/m3)			
Sarin (GB)	0.6	6	0.004	0.203	Sarin (GB)	6 hours	>6 hours
Mustard (H)	0.087	6	0.005	0.8	Mustard (H)	6 hours	>6 hours

Breathing Performance in SCBA Mode

Breathing rate	40 lpm with respirator pressure above ambient
Environmental range	The operating range is -26°C to +60°C (-15°F to +140°F)
End of cylinder air	Able to sustain positive pressure down to 10 Bar (145 psi) cylinder pressure

Breathing Performance in PAPR Mode

Flow rate	120 lpm (constant flow)
-----------	-------------------------

Breathing Performance in APR Mode

Breathing resistance	Exhalation breathing resistance of no greater than 20mm of water at 85 lpm in a negative pressure mode
Inhalation resistance (including filter)	50mm of water at 85 lpm

Materials Used

FM53 respirator	Chlorobutyl / silicone rubber and polyurethane visor
Harness on ST53 SCBA	Kevlar® webbing with stainless steel and nylon hardware
Harness on ST53SD SCBA	Nylon cordura
Backframe	Glass reinforced polycarbonate
Cylinder valve	Nickel-plated brass (CE variant); anodized aluminum (NIOSH variant)
CS-PAPR	CBRN hardened butyl and Noryl™ PPE (polyphenylene ether) thermoplastic

Weight for ST53 Units (based on empty cylinders)

ST53 (excluding cylinder and respirator)	3.0 kg (6.6 lbs)
4.7 litre, 300 bar / 4500 psi / carbon wrapped	3.8 kg (8.4 lbs)
6.8 litre, 300 bar / 4500 psi / carbon wrapped	4.7 kg (10.4 lbs)
9 litre, 300 bar / 4500 psi / carbon wrapped	5.8 kg (12.7 lbs)

Weight for ST53SD Units (based on empty cylinders)

ST53SD 2.0 litre / 17 cu.ft (includes 2 litre cylinder but no respirator)	2.4 kg (5.2 lbs)
ST53SD 1.0 litre / 11 cu.ft (includes 1 litre cylinder but no respirator)	1.8 kg (4.0 lbs)

Weight for CS-PAPR

Unit weight (no battery or filter)	1.75 kg (3.8 lbs)
Unit weight (no filter - 6 x CR123)	1.97 kg (4.3 lbs)

Weight for Respirator Only

FM53 respirator (excluding filter)	0.6 kg (1.3 lbs)
------------------------------------	------------------

The Americas

t: +1 888 286 6440

e: customerservice@avon-protection.com

Europe, Middle East, Asia, Africa & Australasia

t: +44 (0) 1225 896705

e: protection@avon-protection.com



Avon ST53 SCBA systems carry NIOSH Industrial Approval under the provisions of 42 CFR 84: Model 360018 TC-13F-0578, Model 360019 TC-13F-0579, Model 360020 TC-13F-0580.

* The CS-PAPR with ST53 featured in this brochure is not a NIOSH approved configuration as there is no NIOSH standard for combination units.



Type-examination approval: PPE Regulation 2016/425/EU - Module B: ST53 PPBA Certificate CE 684849 - ST53 SD PPBA Certificate CE 684850.

Avon Protection products and associated technical information are controlled under U.S. export laws and regulations and are subject to the Export Administration Regulations (EAR) under the U.S. Department of Commerce (DOC), Bureau of Industry and Security (22 CFR 730-774). Prior authorization from the U.S. Government may be required for any export, re-export, diversion, or transfer.

Copyright © 2021 Avon Protection. All rights reserved.

GR13187-06



ADVANCE WITH CONFIDENCE

avon-protection.com

AVON
PROTECTION