



ST53™

VERSATILE PROTECTION
FOR TACTICAL OPERATIONS

AIR PURIFYING RESPIRATOR

AVON
PROTECTION

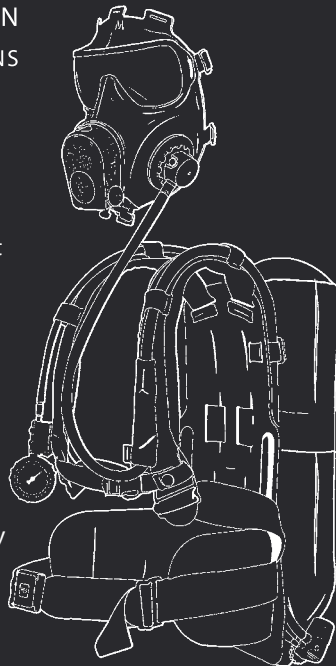
ST53™

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™ mask (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 whilst 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.



FM53™



ST53™

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

Cylinder Valve

The ST53™ includes a nickel-plated brass cylinder valve with the option of locking and non-locking configurations.

Cylinder Content Monitoring

The ST53™ backframe option includes a remotely accessible, chest mounted pressure gauge for monitoring of pressure and a whistle for end of service alarm which has the option to be disabled 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 mask, it is unobtrusive and allows excellent integration with weapons and other personal equipment.

The CDV is attached to the mask 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.

OPTION
A



ST-PAPR™

The ST - PAPR™ is a modular system which can be attached within a few moments using quick connect air line couplings. The addition of the ST - PAPR™ provides the additional levels of serviceability and comfort associated with powered air whilst still retaining the ability to switch instantly to the positive pressure SCBA mode when required.

- The ST - PAPR™ has a remote on/off switch located on the mask hose connector enabling the ST - PAPR™ to be easily switched on and off.
- A speed selector provides a high flow rate up to 165 Litres per minute with a minimum flow rate of 125 Litres per minute at the lowest setting.

OPTION
C



**OPTION
B**

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 general purpose filter 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

- Airline / decontamination attachments are available with the ST53™.
- 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).



- Lithium Sulphur Dioxide battery option with a minimum 7 hour battery life.
- Lithium Iron rechargeable battery option with a minimum 6 hour battery life.

**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 Content Monitoring

The ST53SD™ provides the option of either a remote whistle and 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.

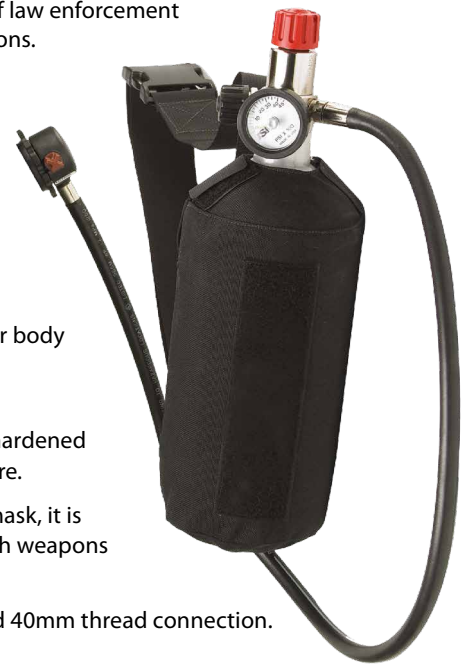
With the option to mount on either side of the mask, it is unobtrusive and allows excellent integration with weapons and other personal equipment.

The CDV is attached to the mask 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	12 minutes

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



Breathing performance in SCBA mode

Breathing rate	103 litres per minute with mask pressure above ambient
Environmental range	The operating range is -30°C to +60°C
End of cylinder air	Able to sustain positive pressure down to 10 bar cylinder pressure

Breathing performance in STPAPR mode

Breathing rate	125 - 165 litres per minute
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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 50mm of water at 85 lpm
Inhalation resistance including General Purpose Filter	

Live agent permeation performance

Challenge chemical	Requirements		Actual		Test agent	NIOSH CBRN requirements	Typical performance
	Max Peak (mg/m ³)	Max Cumulative (mg-min/m ³)	Max Peak (mg/m ³)	Max Cumulative (mg-min/m ³)			
Sarin (GB)	0.6	6	0.004	0.203	Sarin (GB)	6 Hours	>6 Hours
Mustard (HD)	0.087	6	0.005	0.8	Mustard (HD)	6 Hours	>6 Hours

Materials used

FM53 mask	Chlorobutyl / Silicone rubber and polyurethane visor
Harness on ST53 SCBA	Kevlar webbing with stainless steel and nylon hardware
Harness on ST53SD SCBA	Nylon cordura
Backplate	Glass reinforced polycarbonate
Cylinder valve	Nickel-plated brass
STPAPR	GE noryl with a 10% glass fill

Weight for ST53 units (based on empty cylinders)

ST53 (excluding cylinder and mask)	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 mask)	2.4 kg (5.2 lbs)
ST53SD 1.0 litre / 11 cu.ft (includes 1 litre cylinder but no mask)	1.8 kg (4.0 lbs)

Weight for STPAPR

STPAPR without CDV, battery or cartridges	1.1 kg (2.5 lbs)
STPAPR with CDV, two general purpose filters and a lithium Sulphur Dioxide battery	2.0 kg (4.4 lbs)

Weight for mask only

FM53 mask (excluding filter)	0.6 kg (1.3 lbs)
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The Avon ST53 Carries a NIOSH Industrial Approval under the provisions of 42 CFR 84 TC-13F in a variety of cylinders and facepiece size combinations



CE Type-Examination conducted by the BSI. The system has been certified to the requirements of the PPE directive 89/686/EEC (Certificate number CE 564330)



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