



**SCOTT**  
Fire & Safety

# 3M™ Scott™ Airline Breathing Apparatus





# Airline breathing apparatus.

Airline breathing apparatus is the perfect solution for applications across many industries. However, the selection of the equipment has traditionally been seen as a complicated process due to the high number of options available.

3M™ Scott™ Fire & Safety has many years of experience in the manufacture of breathing apparatus and can provide expert advice and technical support.

- ▶ Ideal for environments where ambient oxygen cannot be guaranteed, airline breathing apparatus combines the highest degree of respiratory protection with long duration use. Fed by a medium pressure air hose, it is used for industrial applications as diverse as entering sewers, cleaning out tanks and spray painting military aircraft
- ▶ Reduced user burden and increased wear times compared to Self Contained Breathing Apparatus
- ▶ Completely modular, 3M™ Scott™ airline components afford complete flexibility, allowing the user to individually specify a system to meet their operational needs. Multiple configurations can be selected from a standalone portable product – for use where no other supply of compressed air is available – to products that integrate into existing compressor-fed airline infrastructure

# What to consider when specifying.

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Before specifying airline breathing apparatus, it is vital that the intended work site is subject to a thorough risk assessment and that the required equipment advised by that assessment are in place before undertaking the task.

Areas to consider include:

## Primary air source.

**This can be a factory airline, a compressor or compressed air cylinders. If a factory airline or compressor is to be used, is the air supply clean?**

An Air Filter Unit (AFU) will only remove water, particulates and oil mist. If there is any possibility of Carbon Monoxide or Carbon Dioxide in the air supply, then an air purifier will need to be used or an alternative clean air supply found.

## Supply pressure warning devices.

**How will the wearer know if there is a drop in medium pressure supply?**

Inline warning whistles give an audible warning.

There is an automatic switchover to cylinder air in the 3M™ Scott™ Flite COV if medium pressure air supply is interrupted.

## Reserve air supplies.

**Do you need to provide an alternative supply of air?**

In addition to being standalone supply systems, the 3M™ Scott™ Modulair trolley system can be used as a back-up system, should a compressor supply fail.

## Connecting up the system.

**How are you going to connect the users to their air supply?**

3M™ Scott™ Fire & Safety have a range of hose types and lengths and CEN approved couplings to meet your operational requirements.

## Choosing the right airline breathing apparatus for the job in hand.

**Is the wearer working in a confined space or potentially hazardous atmosphere?**

Depending upon the answers to these questions, the 3M™ Scott™ Flite COV or 3M™ Scott™ RAS provide effective solutions to these important considerations.



# 3M™ Scott™ Modulair

## Airline Trolley System

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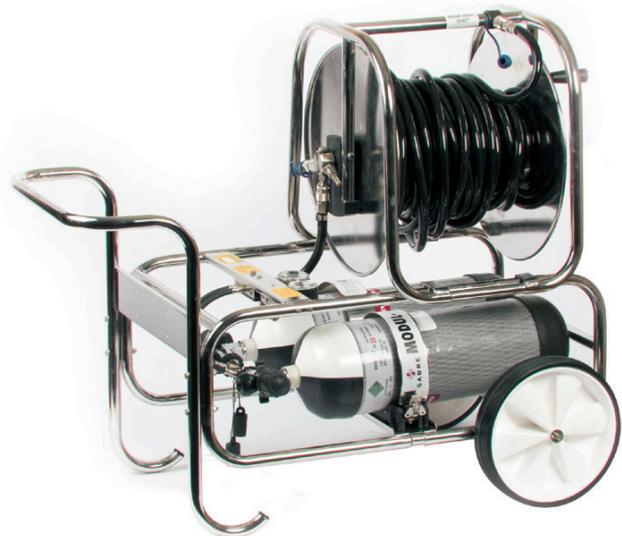
The 3M™ Scott™ Modulair is a compact, easy to use airline trolley system designed to provide portable clean air in restricted access areas.

Versatile and robust, it consists of a lightweight stainless steel hose reel unit and cylinder frame that can be used independently or together. The frame is designed to carry a pair of cylinders and, where required, an additional frame can be vertically stacked to allow connection of up to four cylinders. This, in conjunction with 300 bar high performance pneumatics delivering up to 1000 litres of breathing air per minute, permits up to four people to work at the same time.

Long duration operation is made simple through adjustable cylinder bands and high pressure cylinder connectors to accommodate a variety of cylinder sizes at both 200 and 300 bar. Non-return bleed valves fitted to the cylinder connectors enable cylinders to be replaced independently for continuous operation.

To safeguard against any drop in air supply pressure, the 3M™ Scott™ Modulair can be fitted with a medium pressure warning whistle that provides an audible alarm if the airline supply pressure falls below 3.8-4.1 bar (55-60 psi). The alarm informs safety rescue personnel to switch over to the reserve air supply, change cylinders or initiate evacuation procedures as appropriate.

- ▶ Robust and reliable, stainless steel construction
- ▶ 2 or 4 man operation
- ▶ 2 or 4 cylinder capability
- ▶ High performance pneumatics

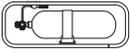
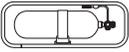
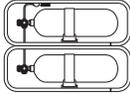
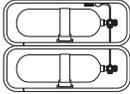
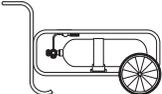
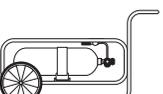
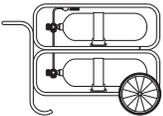
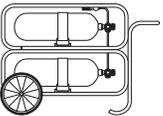
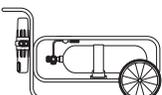
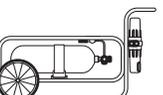
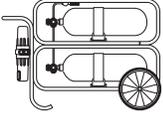
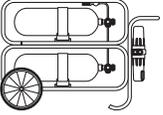
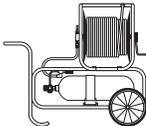
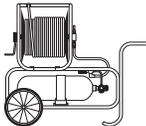
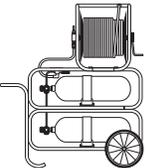
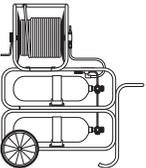
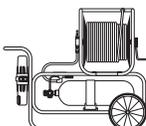
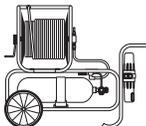
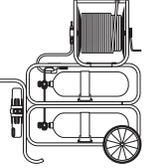
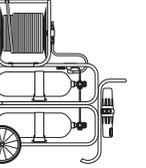


# How to order

## Modular configurations

Basic unit: M-FRM-X-Y

X = number of cylinders, Y = number of wearers (2 or 4)

	2 cylinders / max 2 users	2 cylinders / max 4 users	4 cylinders / max 2 users	4 cylinders / max 4 users
<b>Frame</b>	<b>Frame and cylinder</b>			
	 M-FRM-2-2	 M-FRM-2-4	 M-FRM-4-2	 M-FRM-4-4
<b>Trolley</b>	<b>Mobile trolley conversion = frame fitted with handles and wheels</b>			
	 M-FRM-2-2-T	 M-FRM-2-4-T	 M-FRM-4-2-T	 M-FRM-4-4-T
	<b>Mobile trolley conversion with additional AFU and MP whistle</b>			
	 M-FRM-2-2-T-AFU	 M-FRM-2-4-T-AFU	 M-FRM-4-2-T-AFU	 M-FRM-4-4-T-AFU
<b>Hose reel trolley</b>	<b>Hose reel trolley assembly – frame fitted with handles and wheels</b>			
	 M-FRM-2-2-HRT	 M-FRM-2-4-HRT	 M-FRM-4-2-HRT	 M-FRM-4-4-HRT
	<b>Hose reel trolley assembly – with additional AFU and MP whistle</b>			
	 M-FRM-2-2-HRT-AFU	 M-FRM-2-4-HRT-AFU	 M-FRM-4-2-HRT-AFU	 M-FRM-4-4-HRT-AFU

# 3M™ Scott™ Flite COV Supplied-Air Respirator

## Change Over Valve

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3M™ Scott™ Flite COV (Change Over Valve) is a positive pressure supplied-air respirator that also provides emergency respiratory protection and escape capability allowing the user to enter hazardous atmospheres including those identified as Immediately Dangerous to Life or Health (IDLH). If needed, the switch to the emergency air supply cylinder is accomplished by an automatic changeover valve requiring no user intervention if the airline supply fails and the user needs to exit using the escape cylinder.

The unit also features a flame retardant polyester harness with stainless steel buckles, combined cylinder and pressure reducing valve assembly and a rugged mask-mounted demand valve with automatic first breath activation. The Flite COV can be used in applications such as confined space entry, hazardous materials handling and many general maintenance tasks in a variety of industries including chemical, petrochemical, oil and gas and public utilities.

- ▶ Flame retardant polyester harness
- ▶ Combined cylinder and pressure reducing valve assembly with 10 or 15 min capacity (steel or carbon composite)
- ▶ Optional combined rugged mask-mounted demand valve with automatic first breath activation
- ▶ Ideal for use in confined spaces, hazardous materials handling and many general maintenance duties
- ▶ Simple to operate and maintain
- ▶ Conforms to EN 14593-1:2005 and EN 402:2003



# 3M™ Scott™ Respiratory Airline System (RAS)

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The 3M™ Scott™ Respiratory Airline System (RAS) is a solution to situations where the user must enter and egress from working environments where the hazardous atmospheres are known and the infrastructure of the airline network are semi-permanent.

The 3M™ Scott™ RAS is a positive pressure system consisting of a 3M™ Scott™ Flite style apparatus coupled with standard 3M™ Scott™ Promask PP, 3M™ Scott™ Vision 3 and RAS variants which incorporate a positive pressure demand valve port and a din 40 filter connection.

This solution increases freedom of movement by enabling the user to enter and egress from the working environment using a filter where there is no danger of there being an oxygen deficient atmosphere. Then, when in a working situation where the level of contaminants will be highest, connect into an airline system and work under positive pressure. RAS versions of the 3M™ Scott™ Promask Positive Pressure and 3M™ Scott™ Vision 3 facemasks are available.

- ▶ Entry and egress on filter
- ▶ Maximum respiratory protection on demand valve (DV)
- ▶ Simple to use and service



# Required Flow rates

## Constant flow apparatus

300lpm (litres per minute) per user (ie 2 users = 600lpm, 3 users = 900lpm, 4 users = 1200lpm)

## Demand valve apparatus

1 user = 300lpm, 2 users = 450lpm, 3 users = 750lpm, 4 users = 900lpm

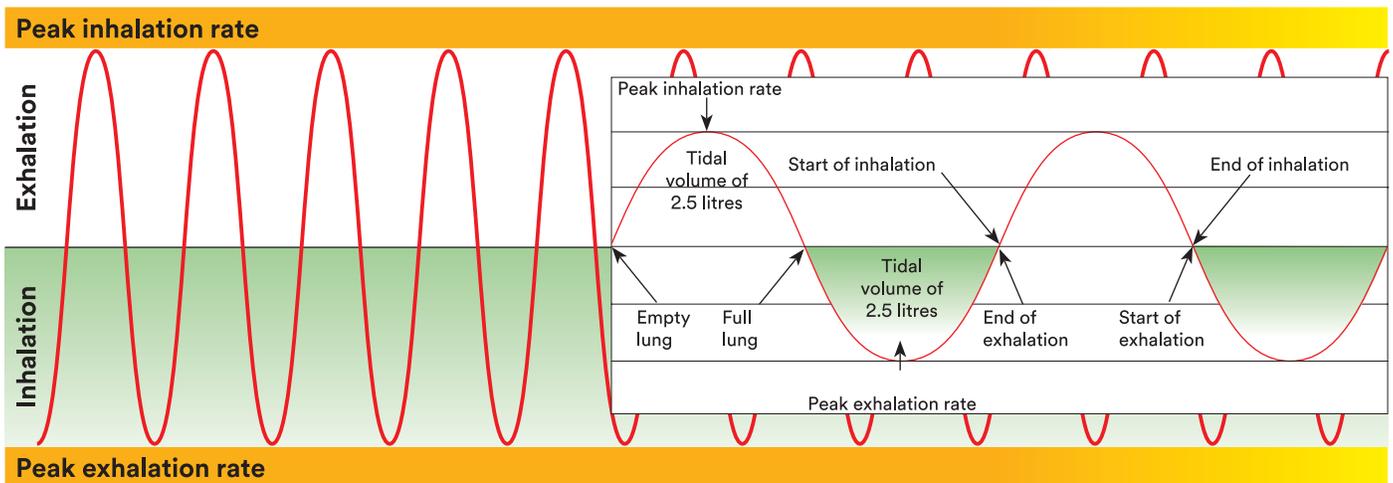
## Why the difference?

Peak flow on demand = 2.5 litres (lung capacity) x 40 (breaths/min) x  $\pi$  (as breathing is effectively a sine wave) = 300lpm

450lpm for 2 wearers (as breathing is never in sync)

Total usage of air will be on average 40-50 litres of air per minute

Note: the above flow rate requirements are those for the European Norm (EN). Other International Standards may differ slightly



40 breaths per minute with a 2.5 litre tidal volume

## CEN (Central European Norm) couplings

CEN type couplings are the standard couplings that are used on 3M™ Scott™ airline equipment. These feature a safetylocking mechanism that has a single action connect, but requires a double action to disconnect.

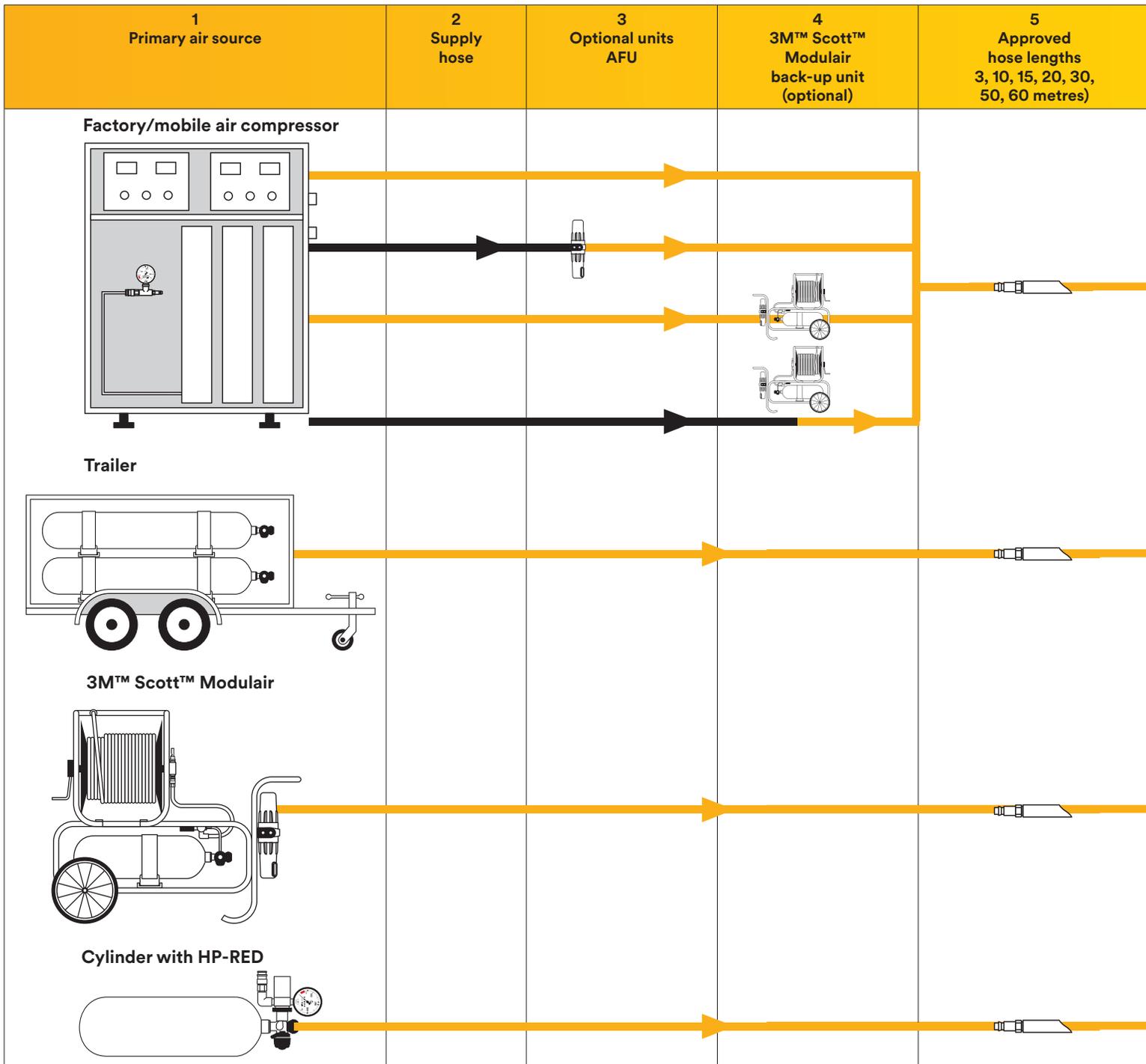
The male couplings are fabricated from 316 grade stainless steel. The female couplings are fabricated from nickel-plated brass with stainless steel locking balls. The female is a self-sealing coupling and can be connected and disconnected under pressure. The female is to a 344 pattern whilst the male coupling is to a longer 341 pattern which allows compatibility with the full range of 340 series couplings.

## Ordering information

Part number	Description	Fitting
021.039.99	CEN socket	1/4" hose tail
021.040.99	CEN plug	1/4" BSP male taper thread
021.041.99	CEN socket	1/4" male taper thread
021.043.99	CEN plug	3/8" bore hose tail
021.044.99	CEN socket	3/8" bore hose tail
021.045.99	CEN socket	3/8" BSP male taper thread
021.047.99	CEN plug	1/4" BSP female parallel thread
021.088.99	CEN socket	1/4" BSP male parallel thread
021.089.99	CEN plug	1/4" BSP male parallel thread

# Airline breathing apparatus

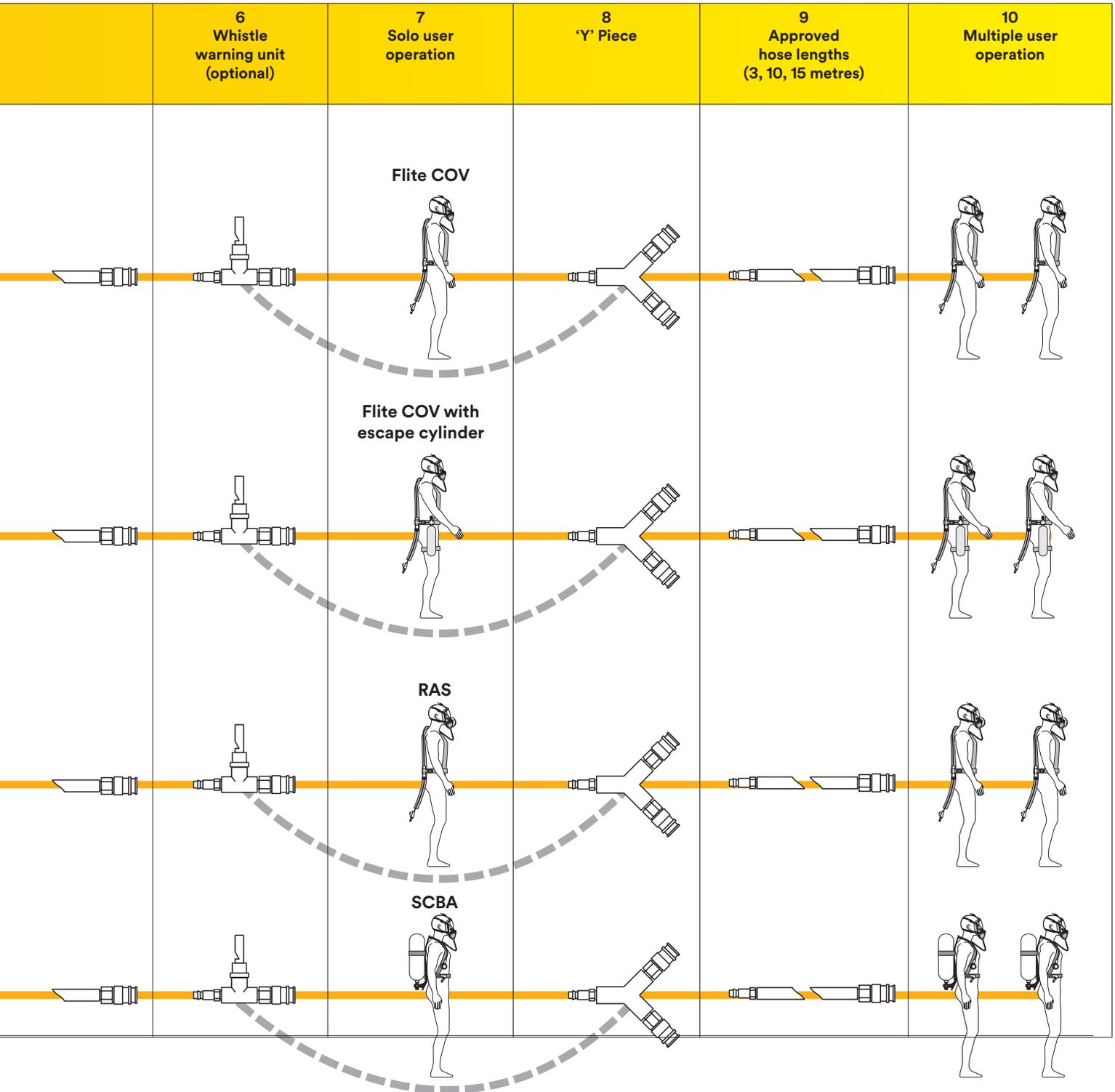
## How to build a system.



These examples are designed to give an indication of how an airline system can be built up. Please note that many other configurations can be specified. The line drawings above are only representations of 3M™ Scott™ airline equipment and should not be considered exact specification. Maximum length of hose to the user after the 3M™ Scott™ Modulair should be no more than 105 metres. Please see Modulair user manual for approved configurations.

# Key

- Clean air
- Dirty air
- Clean air - bypassing solo user operation



# Airline breathing apparatus

## Accessories

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### Y piece

The Y piece adds flexibility by splitting a single hose into two hoses. This allows two users to share a single air supply.



### Medium pressure inline whistle

When placed in the airline system between the breathing hose and the user, this device provides a safe, clear warning should the airline pressure drop below 4 bar.



### Self Contained Breathing Apparatus (SCBA) airline attachment

This attachment is fitted on to 3M™ Scott™ self-contained breathing apparatus enabling them to be used with an airline system.

This attachment is available on both the 3M™ Scott™ Cen-paq and 3M™ Scott™ Contour SCBA sets and existing sets can be easily upgraded if required.



### Airline Filter Unit (AFU)

Available in two or four user versions, the AFU removes particles, oil and water from medium pressure compressed air making it suitable for use with breathing apparatus.



### Medium pressure test gauge

Allows the user to check the pressure of the airline at the point of use.



### HP-RED2

Reduces high pressure air from a single cylinder to medium pressure. As standard the HP-RED2 has a high pressure gauge fitted to display cylinder content. A 55 bar whistle is available together with a selection of connections to fit different types of cylinders.



### Retractable hose reel

Provides a means of convenient storage for 15 metres of hose. It is designed to maintain a safe work area by allowing the user to control the amount of hose laid out. Supplied with PVC or anti-static hose and wall mounting bracket.



### Hoses

Hoses are available in both PVC and anti-static rubber materials in seven standard lengths. All airline hose connections are Central European Norm (CEN) safety couplings that are quick and easy to connect yet prevent accidental disconnection.

# 3M™ Scott™ ProPak SCBA

Self-contained breathing apparatus can also be used in conjunction with an airline by way of a simple attachment. This could be used to extend the working duration of the set (overcoming some of the limitations of the cylinder duration) or as a long duration escape set should the airline supply be compromised. The 3M™ Scott™ ProPak consists of a set of pneumatics mounted in a soft, comfortable jacket. Cylinder duration options of 15, 20 and 30 minutes give the user flexibility, both in terms of weight and profile of the set.

The 3M™ Scott™ ProPak range can also be used with an airline attachment. The advantage of this equipment is you can carry between 30-90 minutes of air as an escape reserve. Alternatively the airline system can be used to extend the duration of the BA set whilst the wearer is travelling to the point where he needs to disconnect and have the flexibility of an unconstrained BA set.

- ▶ Extended duration
- ▶ Greater operational flexibility
- ▶ Low through life costs
- ▶ High performance pneumatics



## Approvals information

Product	Approval
3M™ Scott™ Modulair Airline Trolley System	CE marked in accordance with EN 14593:1
3M™ Scott™ Flite COV Supplied-Air Respirator	CE marked in accordance with EN 14593:1 and EN 402
3M™ Scott™ Respiratory Airline System (RAS)	CE marked in accordance with EN 14593:1
3M™ Scott™ ProPak SCBA	CE marked in accordance with EN 137, MED



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