

AlphaTec®

EN 943

Chemical Protective Suits Instructions for Use **AlphaTec® SUPER FREEFLOW**



Ansell

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CONTENTS

1. Safety considerations

- These instructions for use (IFU) are valid only for AlphaTec® SUPER FREEFLOW*.
- The suit may only be used by trained personnel who are familiar with the contents of this IFU.
- Use the suit only for the purposes specified herein.
- Do not use a damaged or incomplete suit, and do not modify the suit.
- For repair and maintenance, only use genuine AlphaTec® (TRELLECHEM®) spare parts, or the function may be impaired.

1.1 Definitions of signal icons used in the instructions

The following icons are used in this IFU to highlight the user on situations or actions that need special attention not to risk the safety of user, suit or environment.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in physical injury, or damage to product or environment.



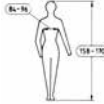




NOTICE

Indicates additional information on how to use the suit.

* Formerly known as TRELLECHEM® Super Freeflow.

1.2 Definitions of pictograms used on the suit label

<p>CE 0598</p>	<p>The suit has EU type approval and complies with the EU Regulation 2016/425 on Personal Protective Equipment. Chemical protective clothing is category III according to the regulation and 0598 is the number of the notified body that is responsible for production control. 0598 is SGS Fimko Oy.</p>		<p>This manual has to be read.</p>
	<p>The suit offers chemical protection.</p>		<p>The size of the suit (see chapter 11.1)</p>
	<p>The suit offers protection against infective agents (EN 14126).</p>		
	<p>The suit offers protection against radioactive particles (EN 1073-1)</p>		

2. Description of suit

AlphaTec® SUPER FREEFLOW is

- A gastight chemical protective suit, type 1c
- Intended for use with external air-source i.e. airline. (Not to be used with mask or SCBA.)
- Single-skin, i.e. no overcover is needed
- Re-usable

The suit is fitted with:

- Sewn-in socks or attached safety boots
- Replaceable gloves
- Freeflow system

The following accessories are delivered with every suit:

- Cotton comfort inner gloves
- Silicone coated oversocks, if fitted with sewn-in socks
- Maintenance kit for zipper and Bayonet ring system
- Extra safety locking pins for the Bayonet ring system
- Suit hanger
- Black plastic bag
- AlphaTec® Bag
- Instructions for use

AlphaTec® SUPER FREEFLOW is designed for use without helmet or with an industrial helmet of type MSA Super V-Gard.



If a helmet is used, make sure the helmet peak is not in direct contact with the suit visor during work. This may obstruct the airflow and cause an increase in the carbon dioxide level in the breathing zone.

The suit has to be worn with safety boots, if sock version.

For more information about materials, components & accessories, see chapter 11.

3. Approvals

3.1 European EU Type approval

CE 0598

AlphaTec® SUPER FREEFLOW is CE-marked and has EU type approval under the EU Regulation 2016/425 on Personal Protective Equipment and the following European standards:

- EN 943-1:2015 + A1:2019
- EN 14126:2003 infective agent protection
- EN 1073-1:2016 & A1:2018 radioactive particle protection
- EN 1149-5:2008 antistatic suit material

NOTE: The chemicals diethyl amine and tetrahydrofuran are not part of the EN 943-1:2015 approval for industrial use of AlphaTec® SUPER FREEFLOW.

AlphaTec® SUPER FREEFLOW has been tested and approved by notified body no 0200; FORCE Certification A/S, Park Allé 345, DK-2605 Brøndby, Denmark.

The suit has been assessed to be safe for use in explosive atmospheres Zone 0,1,2/20,21,21, Group IIA, IIB, IIC according to ATEX Directive and EN 13463-1. See test and assessment report DEKRA 11EXAM 10558E BVS-BI, June 2011.

Link to EU Declarations of Conformity page on Ansell Protective Products' website:



The standards according to which the chemical protective suit is approved are marked on the suit inner label.

3.2 Air supply source

The air supply system, mobile or stationary, shall have a working pressure of minimum 3 bars and a maximum of 6 bars. The delivered air shall fulfil the requirements for breathing air according to EN 12021 and EN 132.

3.3 Airline hose

The compressed air supply shall meet EN 14594 (replacing EN 270:1994) or EN 14593-1 (replacing EN 139). Length: 5-30 meters. A maximum of 3 separate hoses may be connected in series, using CEJN quick couplings, to obtain the required total length.

Approved hoses are breathing air hoses with inner diameter of 10 mm such as the Factair SAH range and North A161250.

4. Proper use

4.1 Intended use

The suit protects against chemicals in gaseous, liquid, aerosol and solid form. It also protects against infectious agents, i.e. bacteria, virus and fungi, and against radioactive particles.

4.2 Limitations of use

- Avoid extensive heat and open flames.
- The suit is not intended for firefighting.
- The suit does not protect against radiation i.e. alfa, beta, gamma or X-ray radiation.
- Avoid explosive environments

4.2.1 Explosive environments

AlphaTec® SUPER FREEFLOW is approved for use in explosive environments according to ATEX, see chapter 3.1.



For the approval to be valid the suit must be:

- Worn with the Tear-off/ATEX lens attached to the outside of the visor at all times.
- Any other equipment used together with the suit must also be suitable for use in potentially explosive atmospheres. This includes separate boots and any overgloves worn on top of the suit's rubber gloves.
- If used with the AlphaTec® Overglove #58-800, these gloves are not electrically conductive so e.g. hand held metal tools may require additional means of grounding.

For added safety the suit may be sprayed with water before and during use.

4.3 Temperature of use

- 40°C to +65°C

Short-term use in higher or lower temperatures is possible, but great caution must be taken with regards to heat stress/burn injuries and frost bite for the user.



Most performance properties of the vapour protective suit or individual element cannot be tested by the user in the field.

5. Pre-use

Before use, make sure:

- The suit is pressure tested/leak tight and undamaged (see chapter 9)
- The source of breathing air is within the specified pressure range, 3-6 bar
- The minimum flow, 220 l/min, inside the suit is achieved.
- The suit and gloves have the correct size (see chapter 11.1)
- Anti-fog visor or anti-fog gel is applied to the inside of the suit visor (see chapter 11.6)
- To wear undergarments suited for the situation, e.g. station wear or fire turn-out gear.
If cold weather or risk of contact with cold chemicals, wear insulating underwear.



Never use a suit which is not passing the pressure test or is damaged.

5.1 Donning – Freeflow suit



Always have an assistant to help you while donning and try to find a clean area to stand on.

- 1) (Sit on a chair) Place both legs into the suit and into the sewn-in socks or boots.
- 2) If sewn-in socks, then put on the silicone oversocks and then put on the safety boots.
- 3) Put on the helmet.
- 4) (Stand up) Adjust and fasten internal waist belt around your waist.
- 5) Connect the compressed air supply hose to the compressor so that the suit is supplied with air.
- 6) Put on the comfort gloves. Insert the right arm into the right sleeve and glove.
- 7) Pull the hood over your head.
- 8) Insert the left arm into the left sleeve and glove.
- 9) Close the zipper and fold the splash guard over it. Pull the zipper straight, using two hands. Never force it! If it jams, gently pull it back and try again. Make sure the zipper is fully closed.



Handle the zipper with care. A damaged zipper can cause serious injury or death.

6. In use

During the intervention, make sure to:

- Minimize the exposure to chemicals
- Avoid direct contact with the chemicals as far as possible

7. After use

7.1 Initial decontamination

After a response in hazardous environment, the suit must be decontaminated before taking it off, to protect the wearer from contamination.

- Make sure to have an assistant for the decontamination.
- The assistant also needs to wear suitable protective clothing and possibly respiratory protection.
- Rinse the suit with plenty of water, preferably with added detergent.

7.2 Taking off the suit

After decontamination, take off the suit in reverse order of that described for donning above, and have someone assist you.

7.3 Final decontamination

If the initial decontamination is not enough, a second decontamination is necessary.

- Use protective clothing/equipment when handling the contaminated suit.
- Acids and Alkaline chemicals can be decontaminated using large amount of water. When the rinsing water has pH 7 the suit is clean.
- Inorganic chemicals can often be decontaminated using large amount of water and detergent.
- Volatile chemicals can be aired out of the suit. Hang the suit outdoors or in a well-ventilated area with the zipper fully open. Check the air for residual chemicals by using simple gas detecting tubes.
- Chemical Warfare Agents (CWA) can be decontaminated using e.g. 30% calcium hypochlorite water solution.
- For chemicals such as oil/petroleum and other organic chemicals, special decontamination agents may be needed. The type of agents available differ between countries and regions. Contact a local supplier.
- Biological agents (i.e. bacteria, viruses) can be decontaminated using e.g. 3% hydrogen peroxide water solution or other similar disinfectants.

8. Storage



When stored the suit should be unfolded and inspected once a year (see chapter 9).

8.1 Storage conditions

- Dry, humidity $50 \pm 30\%$
- Room temperature, 5 - 30 °C
- Away from direct sunlight
- Away from ozone-generating sources, for example electrical engines, fluorescent lamps and air-conditioners

8.2 Storage methods

The suit should be stored:

- Folded as upon delivery or hanging
- In the plastic bag delivered with it or in another tight bag or box
- If stored in a soft bag, never store suits on top of each other, as too much weight or high pressure may damage the visor
- If stored in a box, make sure the box is large enough to easily accommodate the suit without pushing, pressing or squeezing it. Please refer to the boxes listed in the AlphaTec® Gross Price List.
- If stored hanging, suits with boots should have the boots on the floor to avoid excess strain on the shoulders
- The zipper should be almost closed with approximately 10 cm open



If storing the suit on vehicles or containers, abrasion through permanent friction with the contact surface has to be avoided.

8.3 Shelf life

Shelf life refers to suits in storage, without being used. The storage/shelf life applies under optimal storage conditions (see above) and does not form a guarantee. The recommended Shelf life is 10 years from date of manufacture but this may be exceeded or be less, however maximum 15 years. Therefore the condition of the suit needs to be checked regularly to evaluate whether it is in good condition or not (see chapter 9).

8.4 Folding the suit

- 1) Close the zipper with approx. 10 cm open.



- 2) Turn suit upside down.
 - a) Type CV/VP1: Fold the hump flat.



- 3) Fold the sleeves to the middle.



- 4) Fold the legs as follows:
 - a) Boot model: Fold the boot to the waist.



- b) Sock model: Fold the sock into the leg and then fold the leg to the waist.



- 5) Fold the suit on the middle.



- 6) Place the suit in the storage bag or storage box.

9. Maintenance

9.1 Maintenance schedule

The specified intervals below are Ansell recommendations. For auxiliary equipment (helmet etc.), refer to the relevant Instructions for Use.

The maintenance described below can be done by personnel without formal training, provided the instructions in this IFU are followed. For a list of spare parts & accessories, see chapter 11.7.

Area (chapter)	Upon Delivery	After Use	After Repair	Annually	Every 5 years	If Broken
Visual inspection (9.2)	X	X	X	X		
Test of gas-tightness (9.3)	X	X	X	X		
Air-flow test (9.3)	X	X (before use)		X		
Cleaning (9.4)		X				
Lubricate zipper (9.5)		X		X		
Lubricate Bayonet O-Rings (9.6)		X		X		
Repair & Replacements						
Patching suit material (9.10)						X
Barrier inner gloves (9.7)		X				X
Rubber gloves (9.7)		X (*)				X
Rubber cuff (9.8)					X	X
Bayonet O-rings (9.6)					X	X
Bayonet locking pins (9.6)					X	X
Exhaust valve (9.9)						X
Diaphragm in Exhaust valve (9.9)					X	X

(*) Rubber gloves to be replaced after use, if chemically contaminated.



For repair or replacement of visor, boots and zipper, contact an Ansell Service Center, or take a Training course provided by Ansell.

9.2 Visual inspection of suit

The inspection shall consist of the following steps:

- Visual inspection of both inside and outside.
- Look for surface damages on material, seams, visor or face seal, boots (if fitted), inner and outer gloves.
- Look for changes in the material properties such as brittleness, stiffness, swelling, stickiness or other phenomena which could be evidence of chemical degradation or aging.
- Check function of zipper and zipper fitting.
- Check function of the Bayonet glove ring system
- Check the function of the exhaust valves, Freeflow valve, inside tubing and diffusors.
Make certain that they are firmly mounted and not damaged.



If any defect/malfunction is found, the suit must be taken out of service.



Note any remarks, found during the inspection, in the inspection log.

9.3 Test of gas-tightness, Air-flow & Whistle

9.3.1 Gas-tightness test according to EN 464

Test equipment: AlphaTec® (Trelltest) test equipment, see chapter 11.6.

Other equipment i.e. LabTech tester with adapters for AlphaTec® suits can also be used.

Procedure:

- 1) Place the suit on a clean surface, preferably a table.
- 2) Open the suit and plug three of the exhaust valves from inside using the blind plug.
- 3) Remove the other exhaust valve and install the test adapter instead.
- 4) Close the zipper.
- 5) Connect the pressure gauge via the nipple on the test adapter.
- 6) Inflate the suit with an air pistol to 1750 Pa/17.5 mbar.
- 7) Lower the pressure to 1700 Pa/17.0 mbar using the valve on the face seal plate/adapter.
This is the pre-test expansion pressure. Maintain this pressure for 10 minutes, adding air if necessary.
- 8) Adjust the pressure to 1650 Pa/16.5 mbar. This is the test pressure. Set and start the timer and wait for 6 minutes.



Do not touch the suit during the test period of time.

- 9) Note the pressure after 6 minutes. If this pressure is 1350 Pa/13.5 mbar or more, the suit has passed the test. Note the final pressure in the suit log.
- 10) After the pressure test is completed disconnect the pressure gauge from the test adapter, remove the test adapter and the blind plug from the exhaust valve.
- 11) Reinstall the second exhaust valve.



If the suit does not pass this test, the suit shall be removed from service.

9.3.2 Air-flow test

Test equipment: Flow meter (487 090 060) is to be used.

Procedure:

- 1) Open the zipper completely. Find the 2 pce diffusers in the diffuser pockets above the visor.
- 2) Screw the sockets firmly onto the diffusers.
- 3) Connect the suit to the external air source and set the conditions to the lowest pressure that can be expected during real use.
- 4) Make sure the flow meter is held or placed in a stable vertical position. Read the flow. Make sure the indicator ball is in the green area. As a minimum, the top of the ball must not sink below the black line that separates the green area from the red. Consideration should be given to the need for a margin of safety for pressure/flow variations during real use.



If the minimum flow (220 l/min) is not achieved, the suit must not be used.

- 5) Detach the flow meter.

9.3.3 Whistle test

Check the function of the whistle by connecting the source of air via a pressure reducer and reducing the pressure.

If working correctly, the whistle will sound when the pressure goes below 3 bars or less than 220 liters/min.

9.4 Cleaning

For decontamination guidelines, see chapter 7.

9.4.1 Hand wash

Ansell recommends hand washing the suit:

- Hand wash in warm water (40 °C) with added mild detergent.
- Use a piece of soft rag or a smooth brush to clean the suit.



Care should be taken not to scratch or damage the material.

- Let the suit air-dry or use a fan (alternatively a cleaning system such as the TopTrock® may be used).
- Stains of oil or other substances may be washed off carefully with white spirit, after which the suit should be rinsed with lukewarm water with a mild detergent followed by water.



Do not use garments that are not thoroughly cleaned and dried.

The suit material will withstand most commercial disinfectants. Your AlphaTec® dealer or Ansell Protective Solutions AB may be contacted for advice.

9.4.2 Machine wash

If the customer uses washing machine, the machine should be specially designed for washing chemical protective suits:

- Large diameter of the drum
- Using extra amounts of water
- No rotating drum but only oscillating drum
- Mild washing powder



Machine washing the suit is the customer's choice and responsibility. AlphaTec® dealer or Ansell Protective Solutions AB may be contacted for advice.

9.5 Zipper

9.5.1 Function

The zipper is an important part of the suit and also a delicate piece of equipment, that has to be handled carefully.



A damaged zipper can cause serious injury or death.

- Pull the slide using two fingers in the loop attached to the slide.
- Always pull the slide parallel and straight along the zipper. A pull sideways may seriously damage the zipper.
- When closing, make sure that neither suit material nor undergarment material is caught in the zipper.
- If the slide gets jammed or is hard to pull, then pull it back, trace the reason (e.g. dirt or clothing material caught in the chain) and solve the problem. Then slowly try to pull it again.
- Never try to overcome a problem by pulling harder as this will damage the zipper.

9.5.2 Maintenance

Procedure:

- 1) Make sure the metal elements are clean.
- 2) Open the zipper.
- 3) Check along each side of the chain for damage by carefully bending the chain:
 - a) A healthy zipper has a rounded bend.



- b) A broken zipper has a V-shaped bend.



- 4) Close the zipper.

- 5) Lubricate the metal elements, inside and outside, with the wax stick.



The suit must be pressure tested before it is used again.

9.6 Bayonet ring

9.6.1 Function

The AlphaTec® (TRELLECHEM®) Bayonet ring system consists of the following parts:

Sleeve ring – glued to the suit sleeve

Glove ring – where the glove is mounted

Inner ring* – goes inside the shaft of the rubber glove

Viton® rubber O-rings – one in the sleeve ring and one in the glove ring. Together with the rubber glove they provide a triple sealing of the system.

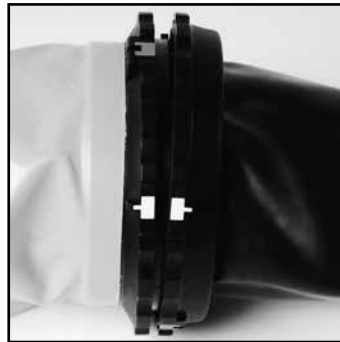
Safety locking pin – prevents the system from unintentional opening



Closed position

Green marks opposite white marks.

To open the system and detach the glove assembly, remove the red locking pin, push the two rings together and twist counter-clockwise until the white marks meet.



Open (detach/attach) position

White marks opposite white marks.

To attach the glove ring, match the white marks, push the two rings together and twist clockwise until the white marks meet the green marks. Insert the red locking pin.

* If the suit is fitted with a 2 or 3-part glove assembly that includes the inner barrier glove, then the inner ring is welded to the barrier glove shaft.

9.6.2 Maintenance

Procedure:

- 1) Open the Bayonet ring and take out the two O-rings.
- 2) Apply Molycote all around the groove.
- 3) If replacing the O-rings: Put the two new O-rings into place.
- 4) Use a small paintbrush to spread the grease evenly.



When functioning properly, the safety locking pin “snaps” into place when pushing it with a finger. The pin may after repeated use become too easy to push into place, i.e. it gets worn out, and must then be replaced.



The two O-rings are different size:
The one with larger diameter goes into the glove ring and the smaller diameter into the sleeve ring.



The suit must be pressure tested before it is used again.

9.7 Replacing gloves

The suit can be fitted with either a single rubber glove or a 2-part glove system consisting of inner barrier glove and outer rubber glove.

Procedure:

- 1) Take out the Safety locking pin.
- 2) Push the rings towards each other, then turn clockwise, to open the ring system.



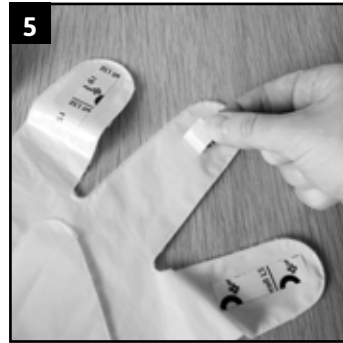
- 3) Pull the gloves out of the ring. *If double glove system, pull the inner barrier out of the rubber glove.*

i If only rubber glove, continue with step 8.

- 4) Only AlphaTec® 02-100 barrier inner gloves that are welded to an inner ring can be used.



- 5) Remove the white protective film on each finger of the inner glove. This will uncover a sticky area that holds the inner glove in place and keeps it inside the outer glove when the hand is retracted.



- 6) Push the inner glove into the outer rubber glove. Make sure all fingers of the inner glove come into position all the way inside the fingers of the outer glove.



7) Press the fingers of the outer and inner gloves together so that they stick together.

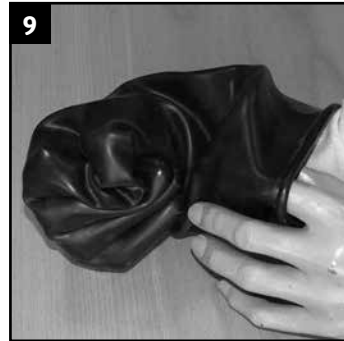


8a) If only rubber gloves, place the black inner ring approximately 5 cm/2 inches into the rubber glove.

8b) If double glove system, push the ring of the inner glove approximately 5 cm/2 inches into the rubber glove.



9) If double glove system, put one hand inside the gloves and curl a fist. At the same time, put a finger of the other hand between the ring and the outer glove to release air that is trapped between the gloves.



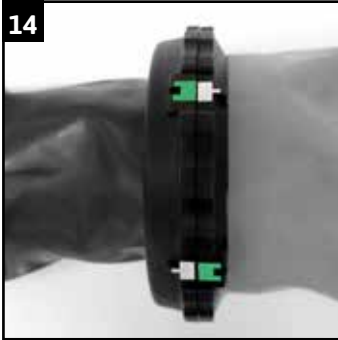
10) Lubricate the O-rings with Molycote.

11) Push the glove through the glove ring and align the thumb of the glove with the green mark on the glove ring. Push it firmly into place using your thumbs.



12) Fold the glove shaft into the glove ring.

- 13) Position the glove ring and the sleeve ring so that the two white marks are opposite each other.
- 14) Now push the two rings towards each other and turn counter-clockwise, so that the white and the green marks meet.



- 15) Attach the safety locking pin.



The suit must be pressure tested before it is used again.

9.8 Replacing rubber cuff

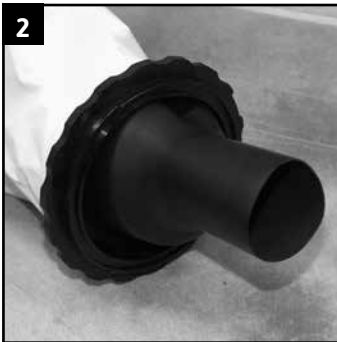
The rubber cuff is an optional accessory, which adds safety if the outer glove is punctured.

Procedure:

- 1) Pull out the old cuff from inside the suit sleeve.



- 2) Push the new cuff ring assembly into the sleeve ring from inside the suit.



- 3) Make sure the cuff is aligned straight. Push it firmly into place. Make sure no suit material gets caught between the cuff and the sleeve ring.



The suit must be pressure tested before it is used again.

9.9 Replacing rubber diaphragm in AlphaTec Exhaust valve



Follow these instructions to remove the cover from the AlphaTec® exhaust valve.

Lay the suit out on a flat surface and locate the exhaust valve on the chest.



When removing the valve cover, do not hold the inner valve retaining collars, as this may loosen the valve from the suit.

Procedure:

- 1) To remove outer valve cover, first rotate cover clockwise so the cover lug is 6-8 mm past the valve body stop.



- 2) Carefully insert a thin blade (do not use a knife) between the "cover lug and the body stop.



Do not try to lever the lug and valve body stop apart, as this could damage the exhaust valve.

- 3) Slowly turn valve cover anti-clockwise over the blade, this allows the cover lug to move past the body stop. Repeat this action until the valve cover is unscrewed from the valve body



- 4) Remove the old diaphragm and scrap it.



- 5) Check that the new diaphragm is clean before mounting it.
- 6) To refit the exhaust valve cover, screw the cover clockwise onto the valve body, turning the cover until there has been 3 clicks on the cover lug and valve body stop.

Take care not to cross thread.



The suit must be pressure tested before it is used again.

9.10 Patching

Minor damage, e.g. tears, punctures, scratches, can be patched using the AlphaTec® (TRELLECHEM®) Repair Kit, which also contains instructions (see chapter 11.6).

9.11 Marking on the suit

Marking on the suit can be made by a “permanent marker” type of pen.



Make sure the ink has dried before folding/packing the suit for storage.

Special labels for marking of the suit are available as an option.

10. Disposal

Worn out suits should be disposed of according to local regulations for rubber/plastic waste. Incineration is recommended.

Suits that are not completely decontaminated must be disposed of in a safe manner, taking local regulations for the specific chemical into account.

10.1. Retirement consideration

A suit should be retired when fulfilling one or more of the below criteria:

CRITERIA FOR RETIREMENT	EXPLANATION
Age	Regardless of how the suit has been used, and although it may still pass inspection and pressure test, it must be retired when reaching 15 years of age.
Beyond repair	The damage is too big and therefore not possible/not safe to repair.
	The suit has already been patched 10 times.
	The cost for repair is higher than to buy a new suit.
Chemically degraded	Chemical degradation cannot be stopped or repaired.



A suit that is being retired due to age can still be used for training.



Clearly mark the training suit "TRAINING", so it is not mistaken for a real/active suit.

11. Technical Data Package

11.1 Suit sizes

SUIT SIZE	HEIGHT (cm)	CHEST/BUST GIRTH
XXS	158-170	80-88
XS	164-176	84-92
S	170-182	88-96
M	176-188	92-100
L	182-194	96-104
XL	188-200	100-108
XXL	194-206	104-112
XXXL	200-212	108-116

NOTE: The data refers to a wearer without SCBA or any other equipment.

11.2 Suit weight

Approx. 6.0 kg / 13 lbs for a suit size L with sewn-in socks.
Attached boots or separate safety boots add approx. 2 kg / 4.5 lbs

11.3 Suit colour

Yellow with orange inside.

11.4 Freeflow system

COMPONENT	DESCRIPTION
Airline passthrough:	Outside: Stainless steel Inside: POM O-ring: Butyl rubber
Warning whistle:	
Inside tubing:	Polyurethane
Diffusors, 2 pcs:	PBT outer casing with PVF sound absorbing material.
External hose with CEJN 342 female coupling:	Rubber breathing hose acc. to EN 14593

WORKING PARAMETER	VALUE
Working pressure	3-6 bars
Min. flow rate	220 liters/min
Max. flow rate	475 litres/min
Warning whistle	Sounds below 3 bars
Noise level	< 80 dB(A)

11.5 Materials

SUIT PART/COMPONENT	DESCRIPTION
Suit material:	Polyamide (nylon) fabric coated on the outside with Viton®/ butyl rubber and on inside with butyl rubber.
Visor material:	2 mm high impact resistant PVC
Glove materials:	
Rubber glove:	AlphaTec® #38-628 made from Viton®/ butyl rubber
Rubber cuff:	Chloroprene rubber
Footwear material:	
Sewn-in sock:	Made of the suit material
Attached boot:	Nitrile rubber
Zipper material:	Heavy-duty zipper protected by an outside splash guard, closing with Velcro.
Length:	Type CV/VP1 suits: 1350 mm Type T suits: 1050 mm
Tape:	Polyester fabric coated with chloroprene rubber on the outside and inside, and with a built-in barrier film (HCR zipper)
Chain:	White copper alloy
Slide:	Bronze (copper/tin alloy)
Exhaust valves:	4 pcs/suit, placed in the back of the hood
	Construction:
Valve seat/washer/nut:	Polystyrene
Valve cover:	Polyethylene
Valve/Suit gasket:	Chloroprene rubber
Membrane:	Natural rubber

11.6 Seam types & attachments

SEAM/ATTACHMENT	DESCRIPTION
Suit material seam:	<p>Thread: Aramid</p> <p>Inner tape: Textile reinforced rubber coated tape, glued to the seam</p> <p>Outer tape: Viton® rubber tape, glued to the seam</p>
Visor attachment:	<p>The visor is glued to the suit and sealed both inside and outside.</p> <p>Inner tape: Textile reinforced rubber coated tape, glued to the seam</p> <p>Outer tape: Viton® rubber tape, glued to the seam</p>
Glove attachment:	<p>Gloves are attached with a Bayonet ring system (see chapter 9.6). The ring is glued to the suit.</p>
Boot attachment:	<p>Boots are attached with a metal band/plastic ring system.</p>
Zipper attachment:	<p>The zipper is stitched to the suit and sealed both inside and outside.</p> <p>Thread: Aramid</p> <p>Inner tape: Textile reinforced rubber coated tape, glued to the seam</p> <p>Outer tape: Viton® rubber tape, glued to the seam</p>
Exhaust valves:	<p>Attached to the suit with a screw and nut</p>

11.7 List of spare parts & accessories

DESCRIPTION & NAME	SIZES	ARTICLE NO
Gloves:		
AlphaTec® #38-628 Viton®/butyl rubber glove	8	K72 818 339
	9	K72 818 340
	10	K72 818 341
	10.5	K72 818 342
	11	K72 818 343
AlphaTec® #58-800 Overglove	11	K72 252 215
Cotton comfort glove	10	K72 240 200
Footwear:		
Nitrile rubber boot	40.5	K72 204 410
	42	K72 204 420
	43	K72 204 430
	44	K72 204 440
	45	K72 204 450
	46.5	K72 204 470
	48	K72 204 480
Visor/face seal accessories:		
Anti-fog lens	CV	K72 270 400
	VP1	K72 270 300
Anti-fog gel		K69 000 710
Tear-off (anti-scratch) lens, 10 pcs	CV	487 030 050
	VP1	487 030 040
Hands-Free Visor Light*	CV	487 030 101
	VP1	487 030 100
Storage:		
AlphaTec® Bag		487 100 600
Hanger	CV/VP1	K72 400 200
	T	K72 400 100
Storage box, plastic	CV/VP1	K78 700 130
	T	K78 700 120

DESCRIPTION & NAME	SIZES	ARTICLE NO
Test equipment:		
Trelltest (requires the sealing adapter/plug)*		487 090 078
Maintenance & Repair:		
Zipper wax kit		K70 000 410
Lubrication for Bayonet ring system		K69 095 005
Viton O-rings for Sleeve ring, 10 pcs		K72 000 606
Viton O-rings for Glove ring, 10 pcs		K72 000 611
Safety locking pin for Bayonet ring system		K73 103 585
Exhaust valve, complete		K72 131 200
Exhaust valve membrane		K73 102 050
Repair kit for AlphaTec® Super, yellow*		487 080 073

*Instructions included

11.8 EU type approval data

See EU type approval on page 8. Tests and classification according to EN 14325:2004, EN 14325:2018 and EN 14126:2003.

It should be noted that all chemical testing was performed on swatches of suit material under laboratory conditions, not under actual workplace environments. The user must determine the applicability of the results obtained under laboratory conditions to the actual conditions of use. Information presented is subject to change without notice.

NOTE: The chemical permeation data for diethyl amine and tetrahydrofuran are provided for information only. They are not part of the EN 943-1:2015 approval for industrial use of AlphaTec® SUPER FREEFLOW, due to the class 3 minimum requirement for permeation.

SUIT MATERIAL AND SEAM - MECHANICAL DATA			
PROPERTY	TEST METHOD	CLASS REQUIREMENT	CLASS
Abrasion resistance	EN 14325:2004/2018, EN 530	> 2000 cycles	6
Flex cracking resistance	EN 14325:2004, ISO 7854:B	> 100000 cycles	6
Flex cracking resistance	EN 14325:2018, ISO 7854:B	> 50000 cycles	6
Flex cracking @ -30°C	ISO 7854:B	> 4000	6
Tear resistance	EN ISO 9073-4	> 40 N	3
Tensile strength	EN ISO 13934-1	> 1000 N	6
Puncture resistance	EN 863	> 50 N	3
Resistance to flame	EN 13274-4 method 3	5 sec in flame, leak tight afterwards	3
Limited flame spread index (LFI)	EN ISO 14116:2015	No flame to reach specimen edge. Afterglow ≤ 2 s	1
Antistatic properties, garment material	EN 1149-5:2008	$S > 0.2$ $t_{50} < 4$ s	Pass
Seam strength	ISO 5082	> 500 N	6
Zipper strength	EN 943-1:2015, ISO 5978	> 500 N	6

SUIT MATERIAL AND SEAM - RESISTANCE TO PERMEATION BY CHEMICALS			
CHEMICAL	SUIT MATERIAL	SEAM	VISOR SEAM
Acetone	5	3	5
Acetonitrile	6	6	6
Anhydrous ammonia (gas)	6	6	6
Carbon disulfide	6	5	6
Chlorine (gas)	6	6	6
Dichloromethane	3	3	4
Diethyl amine*	2	2	4
Ethyl acetate	3	4	5
Heptane	6	6	-
Hexane	6	6	6
Hydrogen chloride (gas)	6	6	6
Methanol	6	6	6
Sodium hydroxide, 40%	6	6	6
Sulphuric acid, 96%	6	6	6
Tetrahydrofuran*	1	1	1
Toluene	6	6	6
*Not part of industrial approval to EN 943-1:2015. NOTE: AlphaTec® SUPER provides only limited protection against tetrahydrofuran.			

CLASSIFICATION OF PERMEATION BREAKTHROUGH TIME						
CLASS	1	2	3	4	5	6
PERMEATION TIME	> 10 min	> 30 min	> 1 hr	> 2 hr	> 4 hr	> 8 hr

COMPONENTS - RESISTANCE TO PERMEATION BY CHEMICALS				
CHEMICAL	VISOR	NITRILE RUBBER BOOTS	HCR ZIPPER	ALPHATEC® #38-628 GLOVES
Acetone	5	5	6	6
Acetonitrile	6	5	6	6
Anhydrous ammonia (gas)	6	6	6	6
Carbon disulfide	6	6	5	6
Chlorine (gas)	6	6	6	6
Dichloromethane	4	3	3	3
Diethyl amine	6	6	2	2
Ethyl acetate	6	6	6	4
Heptane	6	≥3	6	6
Hexane	6	6	6	6
Hydrogen chloride (gas)	6	6	6	6
Methanol	6	6	5	6
Sodium hydroxide, 40%	6	6	6	6
Sulphuric acid, 96%	6	6	6	6
Tetrahydrofuran	5	5	1	2
Toluene	6	6	6	6

SUIT MATERIAL – RESISTANCE TO PENETRATION BY INFECTIVE AGENTS	
CHEMICAL	SUIT MATERIAL
Synthetic blood (ISO 16603:2004)	6
Phi-X174 bacteriophage (ISO 16604:2004)	6
Penetration by biologically contaminated aerosols, using Staphylococcus aureus ATCC 6538 (ISO/DIS 22611:2003)	3
Dry microbial penetration, using Bacillus subtilis (ISO 22612:2005)	3
Wet bacterial penetration, using Staphylococcus aureus ATCC 29213 (EN ISO 22610)	6
Tests and classification according to EN 14126 - infective agents.	

12. Warranty

In case of faults or defects, if any, in the protective suits, including gloves and other accessories, the following is applicable:

If a fault or defect appears in the protective suit as a result or in the course of any use, function or state of the protective suit, the purchaser is requested to contact the company from which the suit was purchased. The terms of sale agreed upon between the purchaser and the said company shall apply in this case. Ansell Protective Solutions AB shall have no liability to purchasers of the protective suits other than when the suit in question was purchased directly from Ansell Protective Solutions AB.

The liability of Ansell Protective Solutions AB for faults or defects of a protective suit shall be subject to the Standard Warranty set forth in its General Conditions of Delivery for Industrial Rubber Products, unless otherwise stated in a separate agreement in writing between Ansell Protective Solutions AB and the purchaser. The General Conditions of Delivery are available on request and for download on <http://protective.ansell.com/en/About/Trade-conditions/>

This manual does not in any way comprise a guarantee or warranty on the part of Ansell Protective Solutions AB, and Ansell Protective Solutions AB expressly excludes any implied warranty of merchantability or fitness. Ansell Protective Solutions AB is not in any way nor under any conditions liable for compensation to the purchaser or commercial user of a protective suit for injury to (including death of) any person or loss of or damage to property of any kind or for costs, loss of profits or other damage or loss of any nature whatsoever.

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