













# **CLEANROOM**

**ENVIRONMENTS** 







As the number one manufacturer and supplier of workwear and protective clothing, **Alsico** has been for many years a specialist in the tailoring of high technology cleanroom and cleanarea garments.

Our continual input into garment design to meet the changing demands and specifications within the cleanrooms and cleanareas combined with a close relationship with fabric suppliers and laundries ensures that we continue to supply garments to meet the most critical standards and norms.

Our new **Clean4Work** collection provides comfortable, easy-to-maintain, High Tech garments for the micro-electronic, electronic, pharmaceutical, automotive, optical and food industries together with outstanding wear performance for cleanroom classes 1 to 10 000.

Only the highest quality fabrics and the most up-to-date developments are selected and based on six key criteria:

- High durability
- ESD performance
- Universal sterilisation protection (Steam – ETO – Gamma – Beta radiation)
- Particle barrier
- Low-linting
- Comfort

A special processing technique, engineered by **Alsico**, is used to prevent fraying. Seams, sewing threads and accessories fully meet the requirements of cleanroom users.

Our **Clean4Work** collection meets the latest European standards for cleanroom garments.

For every cleanroom application, **Alsico** offers the best solution.



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# 1. Cleanroom

In a cleanroom environment, people are the most important source of contamination. The continual renewal of the epidermis produces dead cells which can be carriers of bacteria. Our cleanroom garments hold these cells and other particles inside the garment to prevent contamination of the cleanroom itself.

A.	Comfortable cleanroom coverall Art.Nr. A1433502 Pierre - elastic at the sleeves - elastic at the legs - thumb-loop - metal studs at the inner and outer-leg to attach the boots - elastic in the back Fabric: Alsiclean Royal Blue Also available in 1. and 2., see flap.	
B.	Closed hood Art.Nr. K9903492 Paul - ribbons at the bottom to avoid the hood lifting - elastic and buckle at the back to tighten the hood Fabric: Alsiclean Royal Blue Also available in 1. and 2., see flap.	
C.	Boots with P sole Art.Nr. K9986005 - closure with 2 x 1 piece plastic buckle - elastic at the top - metal studs at the sides to attach to the coverall Fabric: Alsiclean Royal Blue Also available in 1. and 2., see flap.	TOTAL STATES
D.	Coverall with integrated hood  Art.Nr. K1042005 - styled comfort fit - knitted polyester cuffs at the sleeves - knitted polyester cuffs at the legs - elastic in the waist - metal studs at the hood to attach a face mask - ribbon at the back to adjust the hood Fabric: Vektron 4003 white Also available in 1. and 2., see flap.	
E.	Boots with TPU sole Art.Nr. A9201549 Simon - closure with 2 x 2 piece plastic buckle - with ribbon + metal studs at the top of the boot - elastic at the top to tighten the boot around the calf Fabric: Vektron 4003 white Also available in 1. and 2., see flap.	
F-I	.Face mask Art.Nr. A9286344 Isidoor - with metal studs to attach to the hood Also available in 1. and 2., see flap.	
G.	Standard coverall Art.Nr. A1433806 Mathijs - metal studs at the sleeves - metal studs at the legs Fabric: Alsipharma light blue Also available in 1. and 2., see flap.	
H.	Standard hood Art.Nr. A9204444 Maurice - metal studs to attach a face mask - metal studs as front closure - metal studs at the back to adjust the hood Fabric: Alsipharma light blue Also available in 1. and 2., see flap.	
J.	Long socks with knitted fabric around the See page 10 (N.)	calf





# 2. Garment options

The correct garment design and fit are as important in defining the performance as the fabric properties. Alsico offers different accessories all of which provide complete body cover without particle leakage or blow-out.

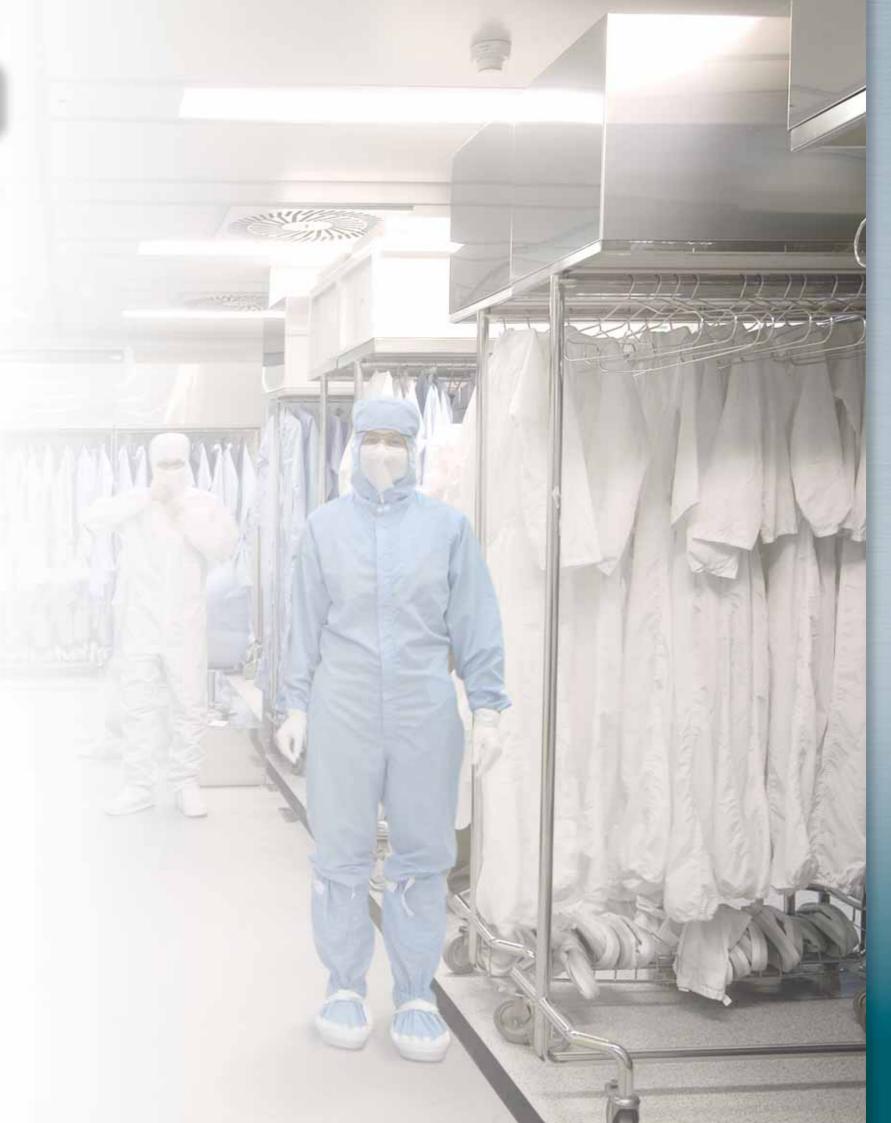


## 2.1. Garment options for hoods and caps

- A. Metal studs as front closure
- B. Metal studs to adjust the hood
- C. Metal studs to attach the face mask
- **D.** Face mask A9286344
- **E.** Polyester ribbon at the back to adjust the hood
- F Polyester ribbon with buckle at the back to adjust the hood
- **G.** K9903005 closed hood with integrated 2 layer face mask Also available in **1.** and **2.**, see flap.
- **H.** Cap

Also available in 1. and 2., see flap.





## 2.2. Garment options for coveralls

#### Sleeves:

- **A.** Finished with knitted polyester cuffs
  Also available in navy blue and in anti-static version
- **B.** Finished with metal studs (3 male and 1 female)
- C. Finished with elastic
- D. Finished with thumb-loop

#### Legs:

- **E.** Finished with knitted polyester cuffs Also available in navy and in anti-static version
- **F** Finished with metal studs (3 male and 1 female)
- G. Finished with elastic

#### Elastic in back:

- H. With fixed elastic in the back
- I. With adjustable elastic in the back
- J. With elastic in the waist





# 2.3.Garment Options for boots and overshoes

#### Top of the boot

- A. Elastic
- B. Ribbon + studs in combination with elastic
- C. Elastic at the back and ribbons at the front

#### Front closure

- **D.** Zipper
- **E.** One piece metal buckle
- F. One piece plastic buckle
- **G.** Two piece plastic buckle Also available in gamma resistant compound

#### **Different soles**

#### H. P sole

Rubber sole, steam and ETO resistant Excellent anti-slippage performance

#### I. Gamma P sole

TPU sole, gamma and ETO resistant Excellent anti-slippage performance



#### J. Alsiclean sole

Rubber sole, steam and ETO resistant Excellent durability after several sterilizations

#### K. Alsico TPU sole

TPU sole, gamma and ETO resistant Excellent durability after several sterilizations

#### L. Flat sole

Rubber sole, steam and ETO resistant. Excellent durability after several sterilizations



#### M. Overshoe with soft sole

#### Art.Nr. A9291227

Fabric: Alsiclean Royal Blue Available in sizes xs – xxl

Also available in 1. and 2, see flap.

#### N. Long socks with knitted fabric around the calf Art.Nr. K9086005

Fabric: Alsipharma light blue

Available in sizes xs – xxl Also available in 1. and 2., see flap.

#### O. Cleanroom ESD boots

#### Art.Nr. H9279888-9990101

White

Available in sizes xs – xxl























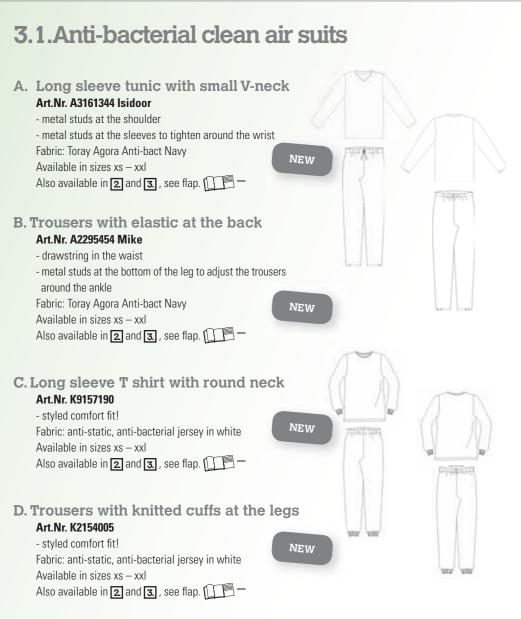
# 3. Cleanarea

Alsico garments for use in cleanarea are extremely comfortable to wear both for overgarments and underclothing. Fabrics of 100% microfilament polyester provide comfort due to higher air and moisture transportation together with a high particle barrier performance. Available with or without antistatic fibre.





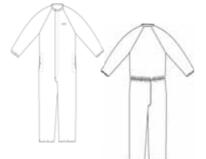




Fabric: Vektron 8200 light blue

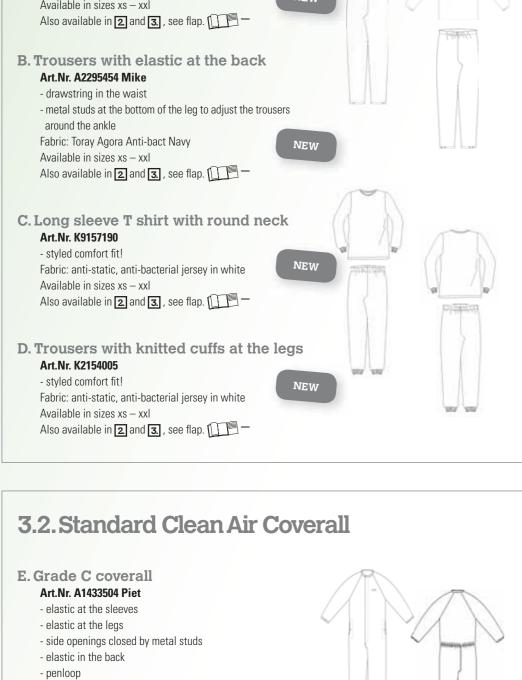
Available in sizes xs - xxl

Also available in 1. and 2., see flap.





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#### 3.3. Standard clean air suits A. Short sleeve T shirt with round neck Art.Nr. K3149190 Cedric - round neck finished with knitted fabric - ultra lightweight! Fabric: Alsisandwash anti-static light grey Available in sizes xs – xxl Also available in 2. and 3., see flap. B. Trousers with knitted cuffs at the legs Art.Nr. A2228762 Ismael - elastic in the waist - ultra lightweight! Fabric: Alsisandwash anti-static light grey Available in sizes xs – xxl Also available in 2. and 3., see flap. C. Short sleeve Tunic with V-neck Art.Nr. K3374005 - 1 chest pocket - 2 hip pockets - sleeves finished with knitted fabric - bottom finished with knitted fabric - super soft touch! Fabric: Ostendia Ice blue Available in sizes xs – xxl Also available in 2 and 3, see flap. D. Trousers with knitted cuffs at the legs Art.Nr. K2108955 - 1 back pocket - elastic and drawstring in the waist - super soft touch! Fabric: Ostendia Ice blue Available in sizes xs – xxl Also available in 2 and 3, see flap. E. Dust coat Art.Nr. A6677259 - 1 inside chest pocket - 2 hip pockets Fabric: Linstat® Negastat® 150 light blue Available in sizes xs – xxl Also available in 1. and 2., see flap. F. Tunic with V-neck Art.Nr. A3161438 Martin - extra protection flap - metal studs at the sleeves to tighten the sleeve around the wrist Fabric: Vektron 8200 white Available in sizes xs - xxl Also available in 2 and 3, see flap. G. Trousers Art.Nr. A2295438 Martin - metal studs at the legs to tighten the trousers around the ankle - elastic in combination with drawstring in the waist - practical front pocket with flap and metal stud Fabric: Vektron 8200 white Available in sizes xs - xxl

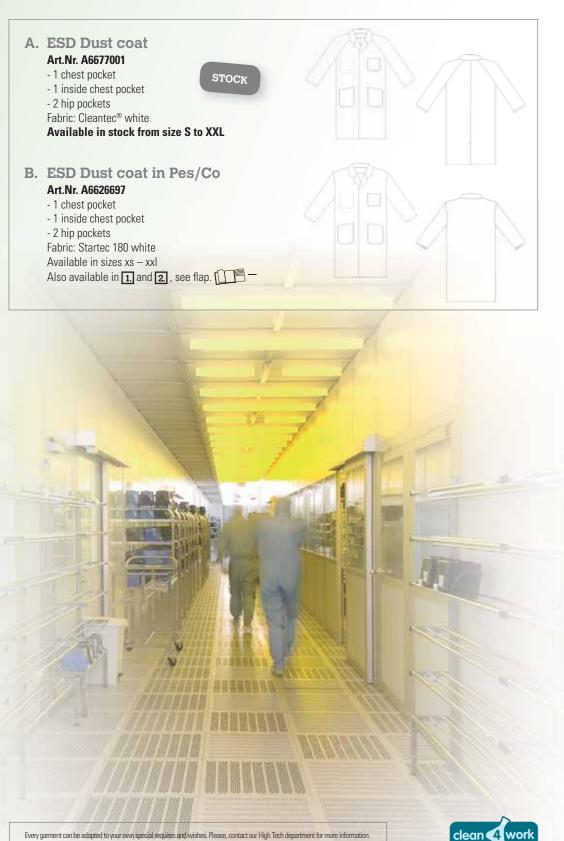




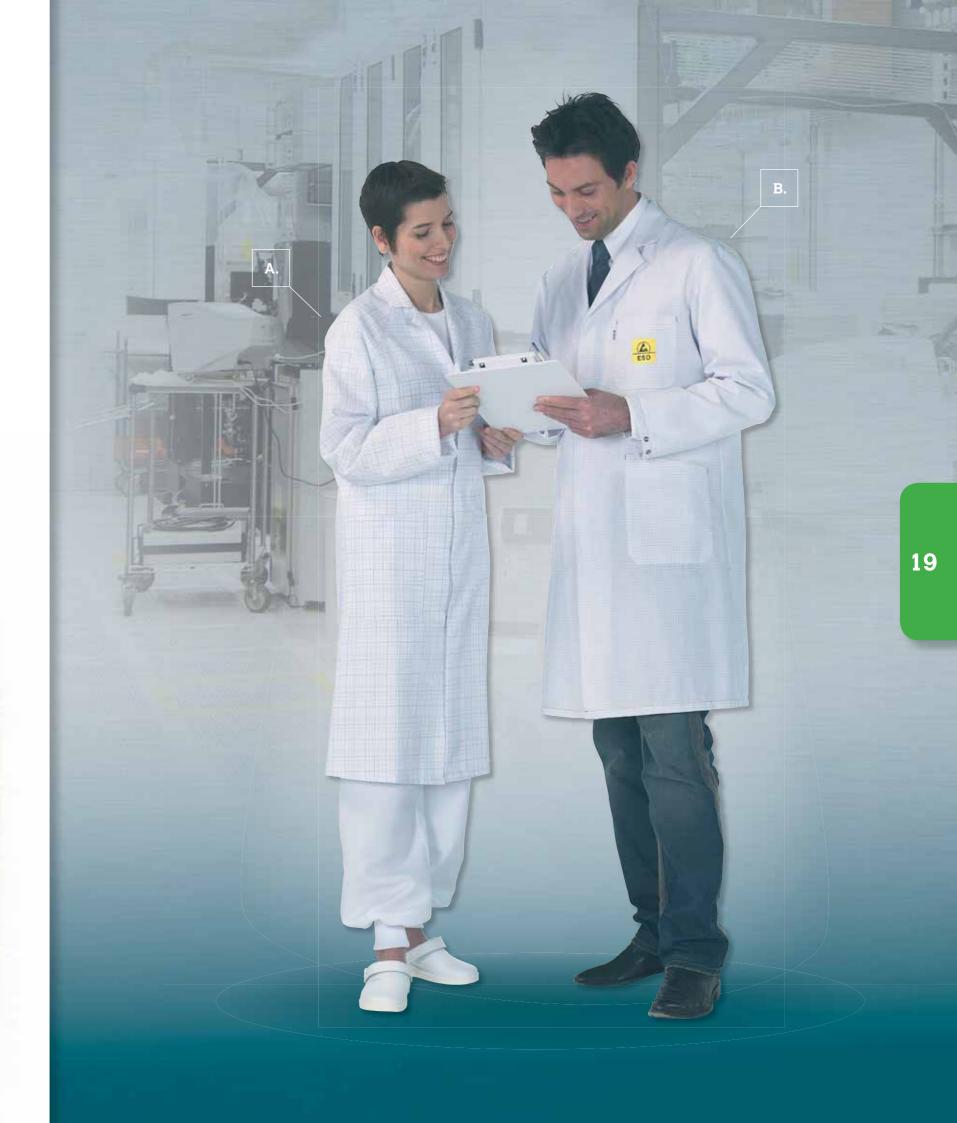
Also available in 2. and 3., see flap.

# 4.ESD

Alsico ESD garments have been designed and engineered to provide optimum protection to ESD overstress discharge within the most critical areas of microelectronic component manufacture and assembly. Alsico garments meet all recognised international standards for ESD.







# 5. Food

To guarantee an optimal hygiene and high quality products in an industrial food production environment, it's necessary to use clean area (Class 10.000 – 100.000) garments. Alsico clean area garments are specially designed to prevent contamination of your product and your clean environment.

A.	Hat finished with knitted fabric  Art.Nr. K9901005  Fabric: Alsidoux light blue  Available in sizes xs – xxl  Also available in 1. and 2., see flap.
B.	Long-sleeve tunic with V-neck Art.Nr. A3161438 Martin - extra protection flap - metal studs at the sleeves to tighten the sleeve around the wrist Fabric: Alsidoux light blue Available in sizes xs – xxl Also available in 2 and 3, see flap.
C.	Trousers Art.Nr. A2295438 Martin  - metal studs at the legs to tighten the trousers around the ankle  - elastic in combination with drawstring in the waist  - practical front pocket with flap and metal stud Fabric: Alsidoux light blue Available in sizes xs – xxl Also available in 2 and 3, see flap.
D.	Open hood with visor  Art.Nr. K9153005  - with earpieces  - tight-fitting  - closure with velcro Fabric: is Vektron 8200 white  Available in sizes xs – xxl  Also available in 1. and 2., see flap.
E.	Long-sleeve tunic  Art.Nr. A3654001  - upstanding collar - sleeves finished with knitted cuffs - closure with velcro Fabric: Vektron 8200 white  Available in sizes xs — xxl  Also available in 2 and 3, see flap.
E	Trousers  Art.Nr. A2295841 Andreas  - finished with knitted cuffs at the legs  - and elastic in the waist Fabric: Vektron 8200 white  Available in sizes xs — xxl  Also available in 2 and 3, see flap.







#### **Cleanroom classes**

Iso cleanroom standards 14644-1 versus US FED STD 209E cleanroom standards versus EU GMP

ISO Class	FED STD Class	EU GMP	Particles per m³					
			0,1µm	0,2μm	0,3μm	0,5µm	1 μm	5 μm
ISO 3	1		1000	237	102	35	8	
ISO 4	10		10.000	2370	1020	352	83	
ISO 5	100	Class A	100.000	23.700	10.200	3.520	832	29
ISO 6	1000		1.000.000	237.000	102.000	35.200	8320	293
ISO 7	10.000	Class B				352.000	83.200	2930
ISO 8	100.000	Class C				3.520.000	832.000	29.300



### Our standard fabric and colour range =

#### 1. → Cleanroom 'Class 10 – 100' fabrics

1.1. Alsipharma: 98%Polyester/2%Carbon fabric, 105 gr/m², plain weave with a carbon grid, micro-filament.



1.2. **Alsistrong:** 99%Polyester/1%Carbon fabric, 110 gr/m², twill 3/2 with a carbon grid,micro-filament.





1.4. Alsi Anti-bact: 99%Polyester/1%Carbon fabric, 110gr/m², twill 2/1 with a carbon grid, multi-filament, anti-bacterial yarn.



**1.5. Vektron 3005:** 99%Polyester/1%Carbon fabric, 115 gr/m², twill 2/2 with a carbon grid, micro-filament..



1.6. Vektron 4003: 99%Polyester/1%Carbon fabric, 98 gr/m², plain weave with a carbon grid, micro-filament.



#### 2. → Cleanroom / Cleanarea 'Class 1000 – 100.000' fabrics

**2.1. Alsidoux:** 99,5%Pontella Polyester/0,5%Carbon, 100 gr/m², plain weave with a 10 mm carbon line .



**2.2.** Cleantec®: 99,6%Pontella Polyester/0,4%Carbon fabric,150 gr/m², twill 2/1 with a carbon grid structure.



2.3. Linstat® Negastat®: 98%Pontella Polyester/2%Carbon fabric, 170 gr/m², twill 2/1 with a 10 mm carbon grid.



2.4. Startec 180: 65%Polyester/33%Cotton/2%Metal yarns, 180 gr/m², plain weave with a 5 mm carbon grid.



2.5. Vektron 8200: 100%Pontella Polyester fabric, 150 gr/m², plain weave.



#### 3. → Clean Air Suits

3.1. Ostendia anti-static: 99%Micro-Polyester/1%Carbon, 130 gr/m², plain weave with a carbon line.



**3.2. Toray anti-bact:** 96%Polyester/4%X-static, 90 gr/m², plain weave.



**3.3.** Alsisandwash anti-static: 99%Polyester/1%Carbon fabric, 95 gr/m², plain weave with a 5 mm carbon line.

**3.4. Jersey anti-bact & anti-static:** 94%Polyester/6%Silveryarns, 133 gr/m², with a carbon yarn.





# ALSIGO more than workwear



Alsico's services go far beyond simple production of workwear. After a detailed analysis of the needs and hazards, we help our customer in selecting the fabric, the model, the accessories ...

In this way, our clothes perfectly meet the customer's requirements regarding use, hazards and treatments. This leads to the perfect combination between comfort, image, protection and price.

Moreover, our production takes place in working conditions that meet the standards of the ILO-conventions and the "Clean Clothes Campaign".