

THINKING SAFETY



AUTOFLUG TOXICSHIELD

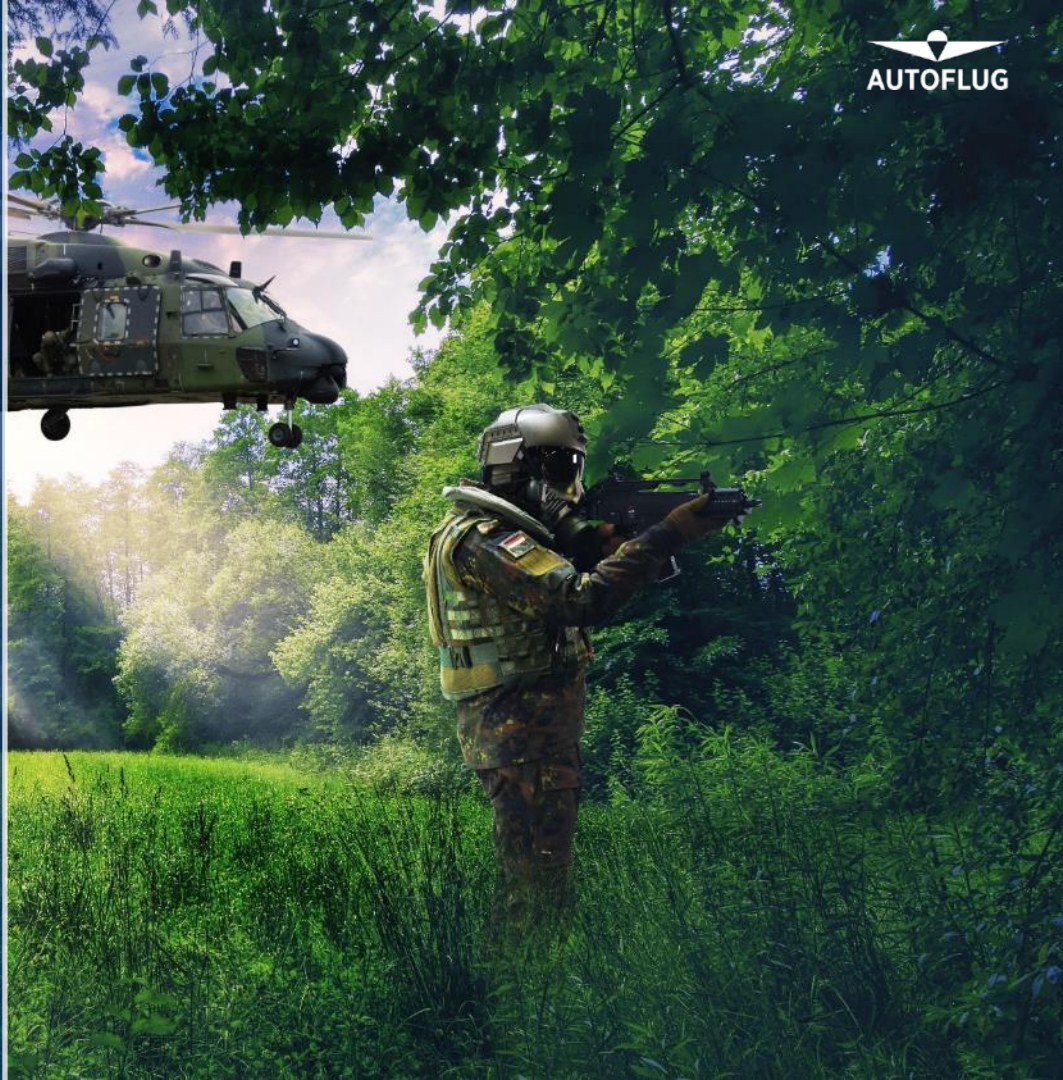
NEXT GENERATION CBRN PROTECTION

SAFE @ Bergedorf, March 2023



AUTOFLUG Rescue & Safety

Protection solutions for people
and equipment





Agenda

- Let's see.

Basics

Purpose

- The CBRN flight suits is intended to be used by aircrew involved in the operation like pilots, flight engineers, load master, door-gunner, medics or air-surveillance personnel, and shall be suitable for all expected aircraft and helicopter operations and conditions.
- The CBRN flight suits shall offer a reliable protection against chemical, biological, radiological and nuclear agents of military or civil origin.



NATO AEP-38

- Operational Requirements, Technical Specifications And Evaluation Criteria For CBRN Protective Clothing.

History

- Flying under CBRN protection in the old days
 - Mostly Jets (Phantom, Tornado), others ???
 - US Systems → JSAMs

Once you start looking for old systems in the net.....

The need for CBRN protection was a necessity during the “old times”



Change of requirements



Cold war requirements:

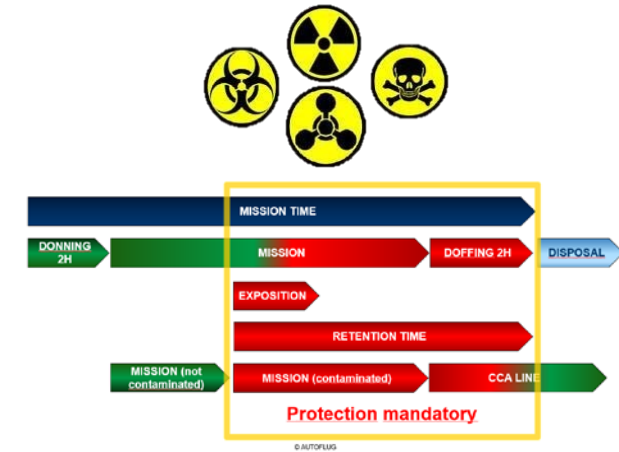
- Threat
 - Gas
 - Aerosol
 - Liquid
- Go fly, whatever...

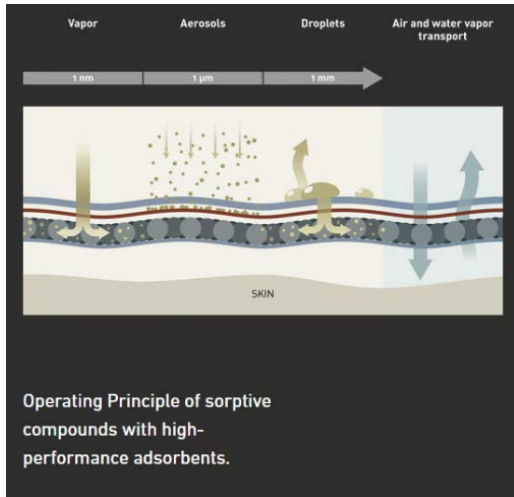
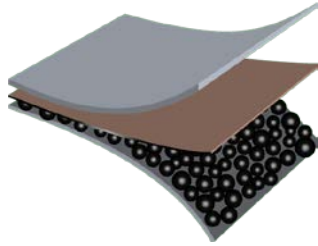
POST cold war:

- Threat
 - Gas
 - Aerosol
- From peace time scenario to ?
- SURVIVE
- Comfort
- Climatization
- Long missions

New ideas

- defining new basics:
 - Threat & CCA-Line
 - Times & Mission profiles & platforms
 - Climate & global use





New Material

- Active Charcoal Material
 - Light
 - Permable
 - Tested
 - Filter

New ideas

- defining new basics:
 - Movement & Clothing concepts
 - Qualification
 - Certification

- And many more....





Thinking outside the box

- Training and evaluation during
 - preparation and
 - execution of TOXICTRIP
- Easy understanding of system set up
- Doability of procedures
- Reachability of equipment

→ **This influenced the design and brought the perfect solution!**

The ToxicShield suit

Components

- Underwear
- CBRN-protection layer
- Flight suit
- Helmet
- Mask assy
- Gloves
- Boots
- Communication unit
- Hydration system
- Survival vest





Die Collage am LFZ LUH-SOF zeigt:

- Pilot (oben links)
- Doorgunner (oben rechts)
- Pilot bei Vorflugkontrolle (unten links)
- Tactical Operator (unten Mitte)
- LFB bei AFP-TSH-Ankleide (unten rechts)



Qualification

- Walking through the platforms



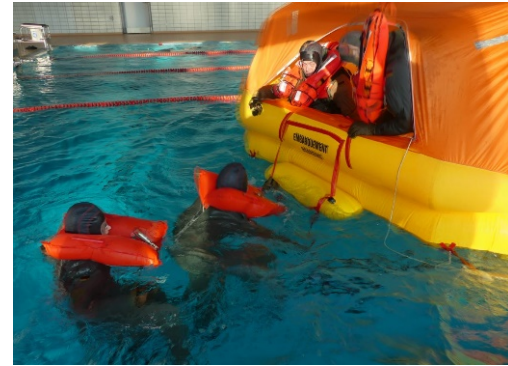
Die Collage am LFZ CH53 zeigt:

- Pilot bei Notausstieg (oben links)
- Pilot (oben rechts)
- Pilot bei Vorflugkontrolle (unten links)
- Tactical Operator (unten Mitte)
- LFB bei AFP-TSH-Ankleide (unten rechts)



Qualification

- Sea Survival
- CCA-Line





41A
HAWK
MILITÄR





CCA Procedure
AIP-15H



As of 24.03.2021




UGA Card in accordance with STING 2013

Components:



CBRN protection
undergarment



Over garment
plus boots

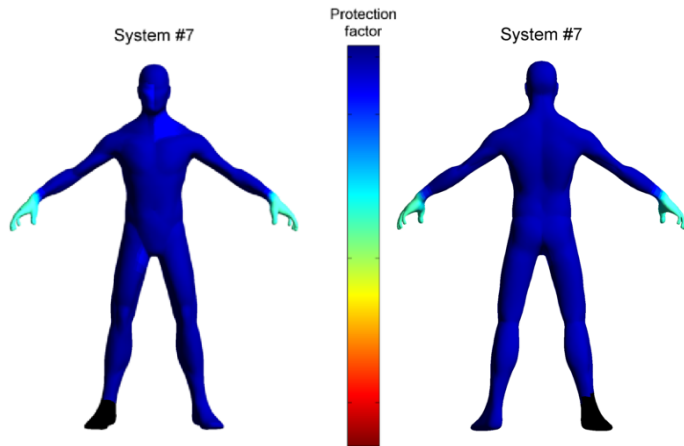


NBC suit,
helmet & gloves

Qualification

- CBRN & Retention tests
- Climate & thermology

And many more, we do it the German way!



Further ideas

- the interior CBRN-protection tent for Helicopters & Multibase
 - Prevent contamination of aircraft interiors
 - Modular design, based on aircraft dimensions
 - Flexible configurations depending on mission requirements

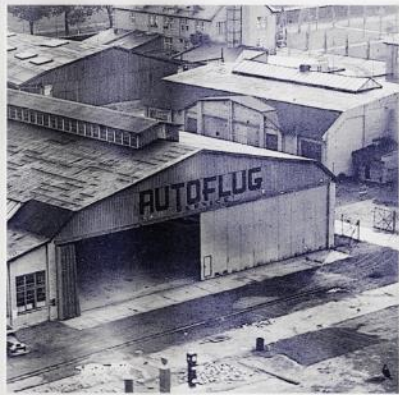


The ToxicShield suit

Key Features

- CBRN protection lightweight clothing system
- Modular design based on mission requirements
- Easy donning & doffing
- Available for all rotary / fixed-wing platforms
- Designed for all crew stations with individual configuration
- Compatible to existing aircrew clothing
- Optimized for freedom of movement
- Allows missions under all climate conditions
- Significantly reduced heat stress

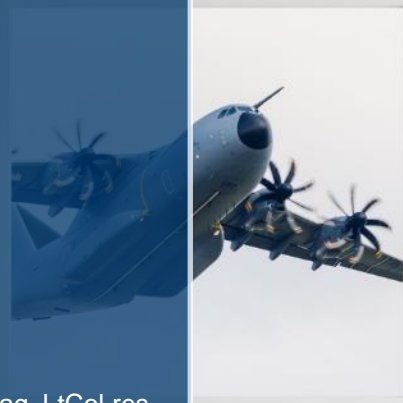




AUTOFLUG

The AUTOFLUG story

Since 1919.



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Underwear



Active charcoal
CBRN protection layer



Helmet and mask
(see update next slide)



Gloves / Boots
Survival vest filter



History



1913

Aviation pioneer **Gerhard Sedlmayr**, Chiefpilot of „Flugmaschine Wright GmbH“, first flight record: 6 hours flight time plus night landing



1919

Aviation pioneer **Gerhard Sedlmayr** founds his “Spezialhaus für das AUTOmobil und FLUGwesen, AUTOFLUG” in Berlin-Johannisthal.



1928

Start of a cooperation with IRVIN resulting in AUTOFLUG becoming the leading manufacturer of emergency parachutes in Germany.



1955

Reconstruction in Hamburg by Dr. Gerhard Sedlmayr, the founder's son.



1958

AUTOFLUG takes charge of the maintenance and repair of Martin-Baker ejection seats in Germany and starts manufacturing their components and subsystems under licence.

History



1989

Beginning of the development and manufacture of safety seats for helicopters



1992

Beginning of the development of fuel gauge and control systems.



2000

Beginning of the development of protective equipment for aircrew.



2002

Beginning of the development of textile safety seats for military land vehicles



2006

Beginning of the development of modular equipment concepts for aircraft cabins

History



2009

Beginning of the series production of safety seat systems for the A400M transport aircraft program.



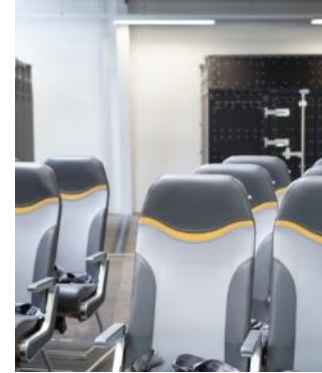
2014

Gerhard Sedlmayr Lecture Course – remarkable moments from 100 years of flying history.



2014

Beginning of the development FLYWEIGHT® for civil helicopters



2018

Beginning with the serial production of seat pallets



2019

A CENTURY OF THINKING SAFETY – 100 years AUTOFLUG



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