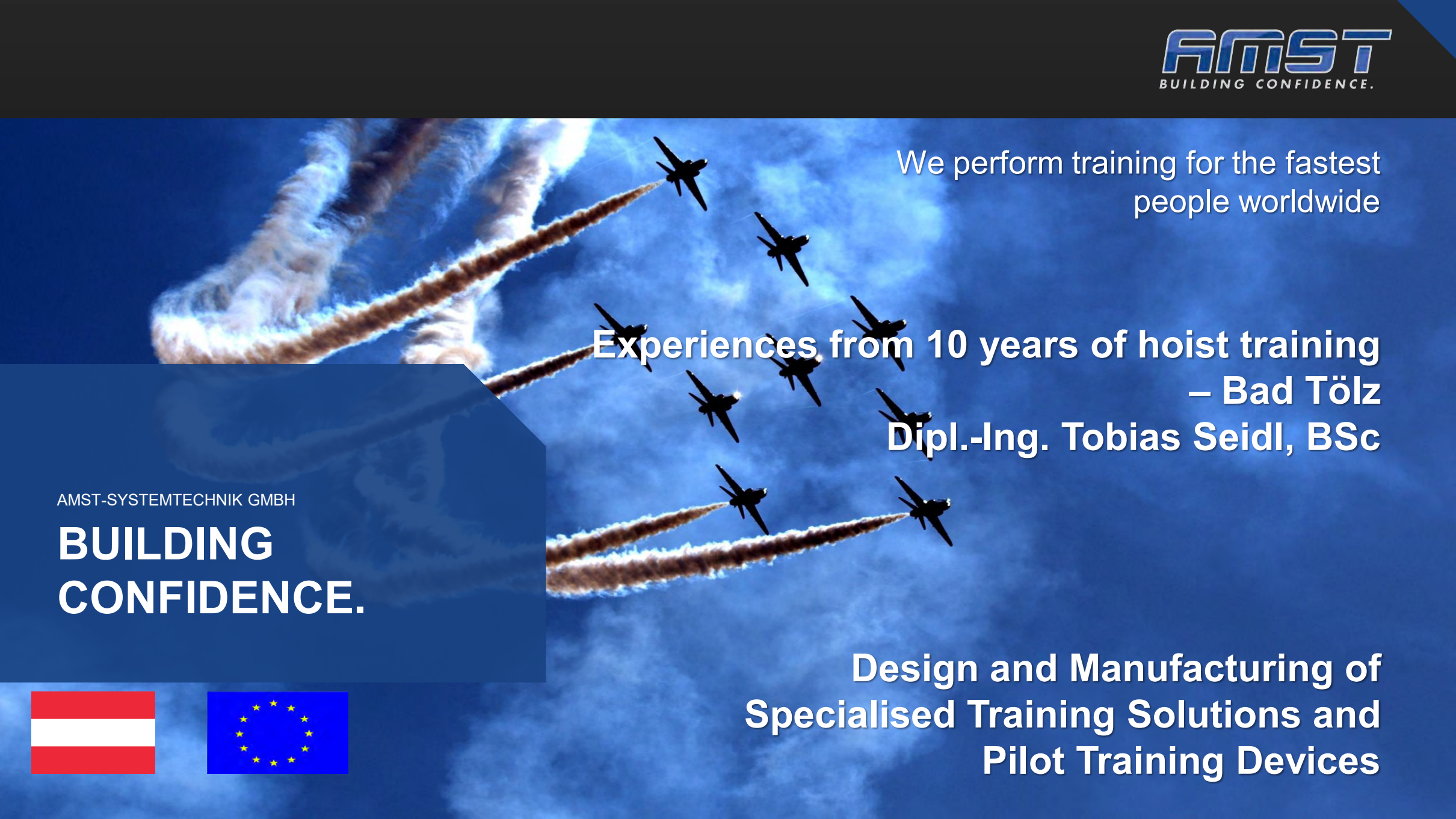


We perform training for the fastest people worldwide

Experiences from 10 years of hoist training – Bad Tölz

Dipl.-Ing. Tobias Seidl, BSc

AMST-SYSTEMTECHNIK GMBH

BUILDING CONFIDENCE.

Design and Manufacturing of Specialised Training Solutions and Pilot Training Devices

Table of contents

Table of Contents

AMST History & Facts

1987
- Foundation of Austria Metall Systemtechnik GmbH
- Delivery of first HTC & HPO (still in operation)

1996
- Privatisation of AMST Systemtechnik GmbH

2011
- Establishment of AMST Aviation GmbH

2017
- Establishment of AMST Visual Systems GmbH
- Establishment of AMST IG GmbH

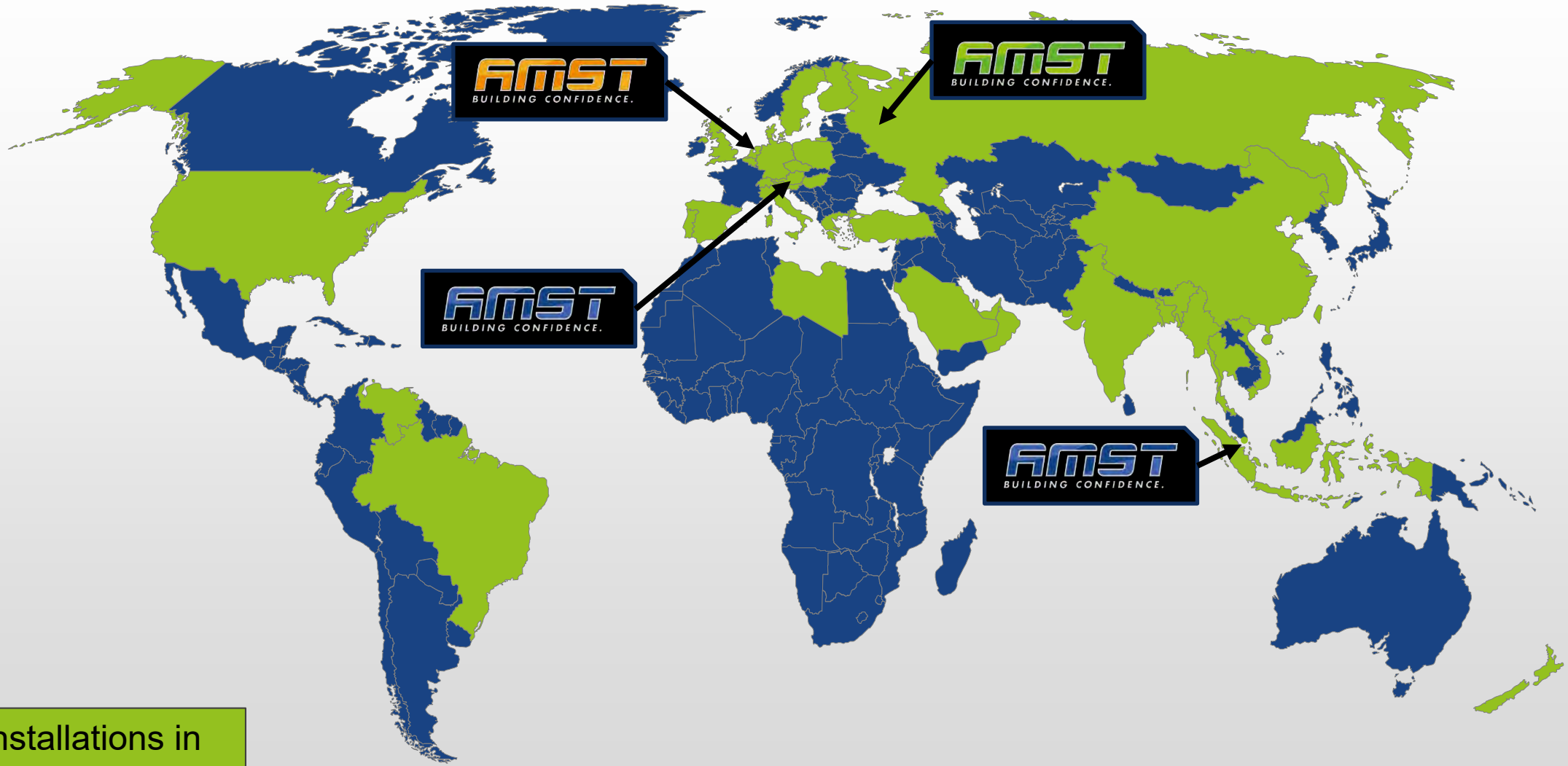
2018
- Establishment of AMST Aviation B.V.

World Leading Training Technology and Recognized Partner

~160 Employees worldwide and growing

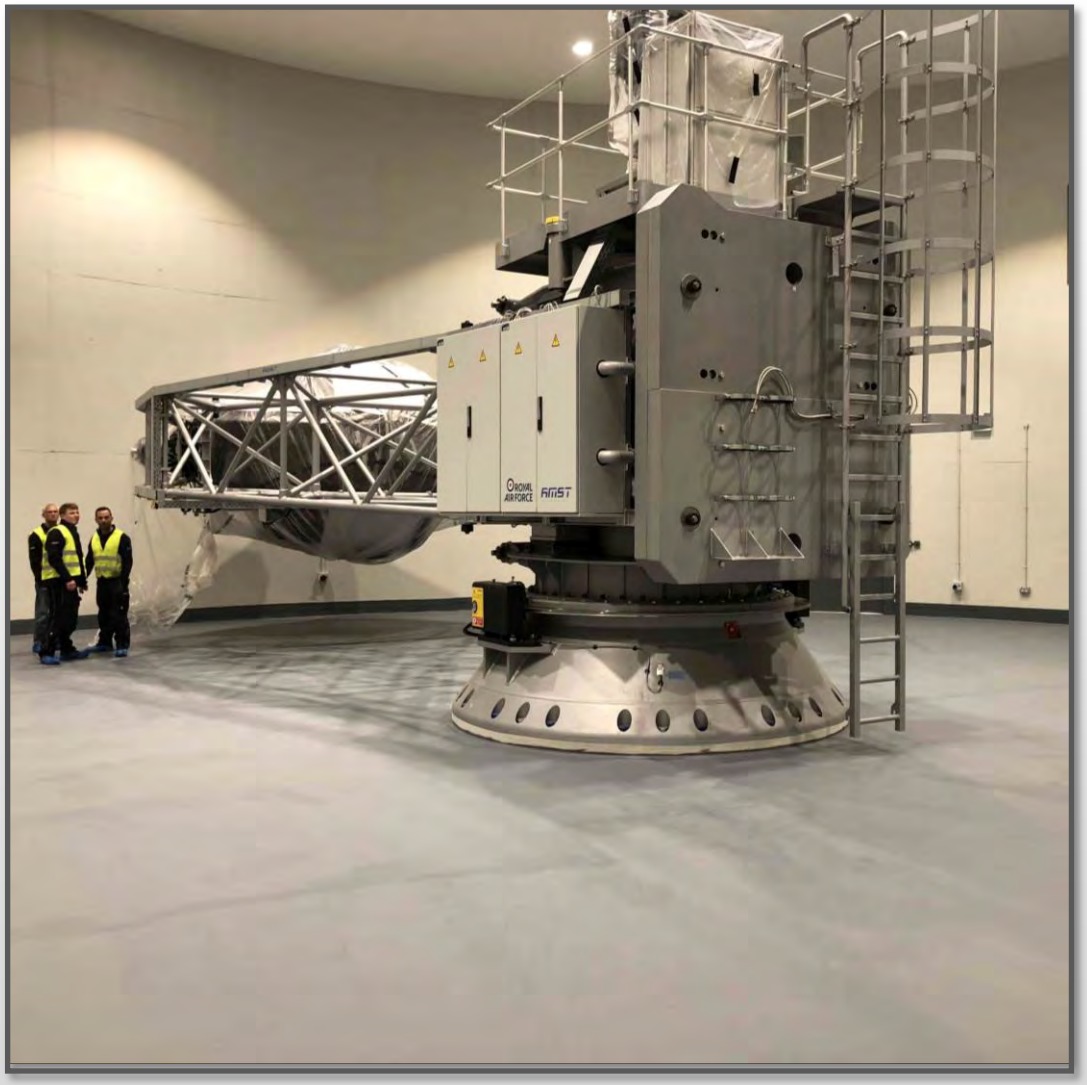
Supplier and Partner of Leading Aeromedical Institutes and Training Providers

CUSTOMER BASE & LOCATIONS



Installations in
>40 countries

HTC – UK → official opening Feb 04 2019



From: Air Commodore D C McLoughlin OBE QHS OstJ MB BCh BAO MSc FRCP FFOM MRCGP DRCOG DFFP DAvMed psc(j) RAF

ROYAL AIR FORCE

RAF Centre of Aviation Medicine
Air Officer Medical Operations

RAF Henlow
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Mr M Bauer
Chief Executive Officer
AMST-Systemtechnik GmbH
Lamprechtshausener Strasse 63
5282 Ranshofen
Austria

Ref: 20190321-AO Med Ops Corres-O

Date: 21 March 2019

Dear Manfred,

I would like to thank AMST-Systemtechnik for their outstanding work that led to the opening of the new High-G Training and Test Facility at RAF College Cranwell on 4 February 2019 by the Chief of Air Staff, Air Marshal Sir Stephen Hillier KCB CBE DFC ADC.

This cutting-edge technology has led to a step change in how the United Kingdom trains and prepares our pilots for High-G operations. It provides the essential link between flying and anti-G countermeasures, and I believe the High-G Training and Test Facility forms a critical component of the RAF Centre of Aviation Medicine's ongoing enhancement of Air Safety. The centrifuge has been extremely well received by all those pilots who have trained on it so far. Aircrew have been highly impressed by the realism and relevance that it brings to High-G training for the Hawk, Typhoon and F-35. I am particularly pleased by the fantastic co-operation between AMST-Systemtechnik and my staff, together with Thales UK.

This co-operation was a vital aspect in the achievement of such an impressive delivery schedule of 2.5 years from start to finish. The quality and professionalism of the equipment and technical support have been second to none, ensuring that the Royal Air Force has a world leading capability. We were sorry that you couldn't attend the official opening ceremony, nonetheless we look forward to continuing to have a long and productive relationship with AMST-Systemtechnik.

Thank you,

AMST
BUILDING CONFIDENCE.

TRAINING & SIMULATION PRODUCTS

origin: www.airbus.com

Introduction

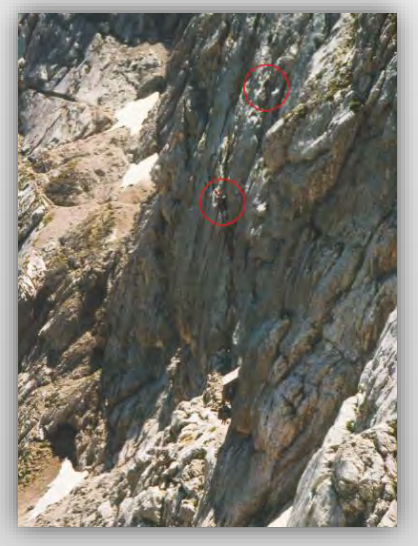
- Helicopters with integrated hoisting systems are used worldwide as an essential mission support equipment by:
  - SAR organizations
  - Coast guards
  - Police
  - Fire fighters
  - Special forces
  - Naval forces
  - Army
  - Industrial service providers for exposed on/offshore equipment

Rescue Mission NORMAN ATLANTIC - December 2014
Rescue Mission VIKING SKY - March 2019

- Evacuation of 427 passengers and crew members from the burning ferry boat NORMAN ATLANTIC on the way from Corfu to Bari.
- The complete evacuation was done by airlifting and transport of the passengers to nearby vessels supported by Italian and Greece navy helicopters

- Airlifting of 464 passengers from the engine failed cruise ship VIKING SKY near the Norwegian coast line.
- The evacuation was supported by 5 helicopters operated by CHC and 28 rescuers.

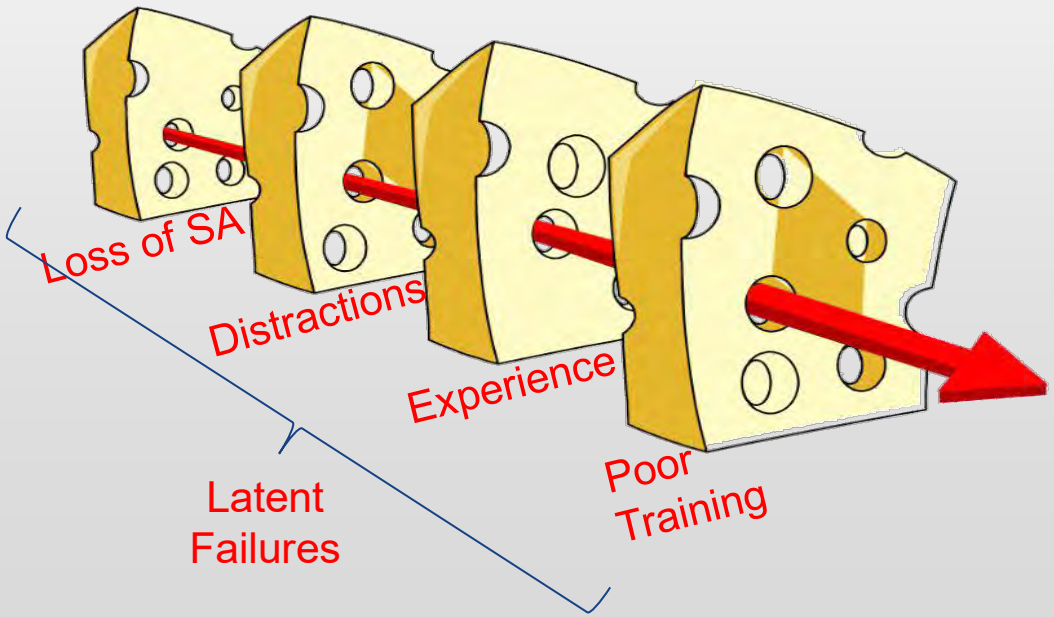
Rescue Missions in Bavaria - Germany per Year



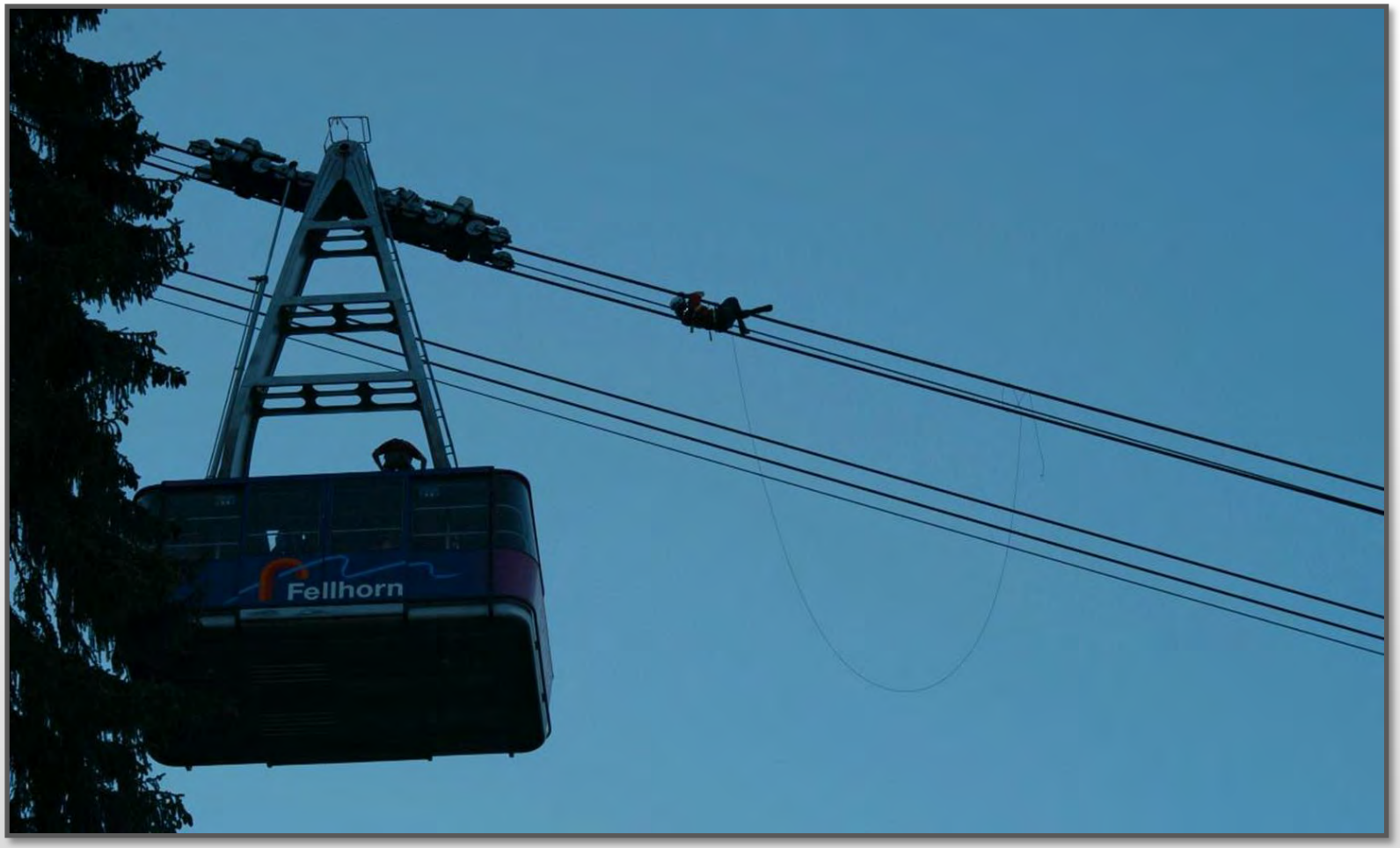
- Overall 12,000 rescue missions
- 6,000 of them with medical treatment
- 2,000 missions in difficult terrain with helicopter support
- 1,000 special mission support
  - Fire fighting
  - Floods
  - Industrial support

Human Errors

- in „normal“ jobs, after some explanations, learning by doing is usual and adequate
- in airborne procedures, you might be dead before you are competent, even if it was only a training flight
- Human Error Explains Between 60% and 80% of Deadly Aviation Accidents



Training Accident



- Available solutions:
  - static hoisting training
  - live training
- Tasks:
  - Reduce live training
  - Raise training effect above what is possible with static solutions („work with the helicopter, not with the hoist“)
  - Full mission training

General Training Approach

Hear it

See it

Feel it

Touch it

First idea

First idea

Know-How and Cooperation

- The RHT system was designed in cooperation with the BERGWACHT BAYERN, Bavarian Mountain Rescue Service - Bad Toelz, Germany.

- AMST acts as engineering, installation and sales company for turnkey RHT systems.
- BERGWACHT BAYERN takes care on instructor training and procedure standardization for AMST customers

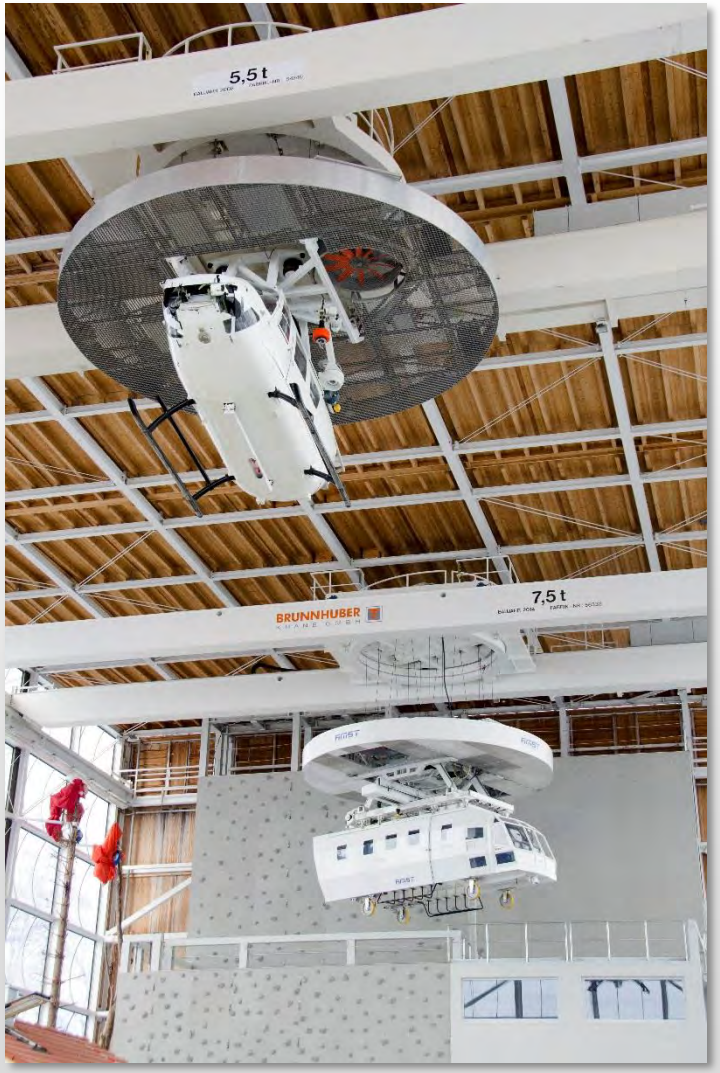
- Patented design solution

- The only available system worldwide is installed in Bad Toelz, Bavaria, Germany.
- Any interested party is welcomed to visit this unique facility prior acknowledgement.

Building Dimensions

- Training area at the BERGWACHT BAYERN in Bad Tölz, Bavaria, Germany:
  - Length: 60 m (196ft)
  - Width: 25 m (82ft)
  - Height: 20 m (65ft)
  - Distance between helicopter landing gear and floor level 13 m (42ft)
  - Outside view
  - No air condition and heating system

Helicopter Mission Trainer



- Integration of a used original helicopter cell
- Generic modular configurable training cell

Equipment
Dynamic Helicopter Simulator

- Special purpose crane certified for man-rated operations
- Variable speed control for all axis
- Turn able crane trolley
- Equipment platform containing electrical panels, air supply and simulation equipment
- Roll able and pitch able training cell
- Variable hoist system certified for man-rated training
- Cockpit or ground floor operation

Features

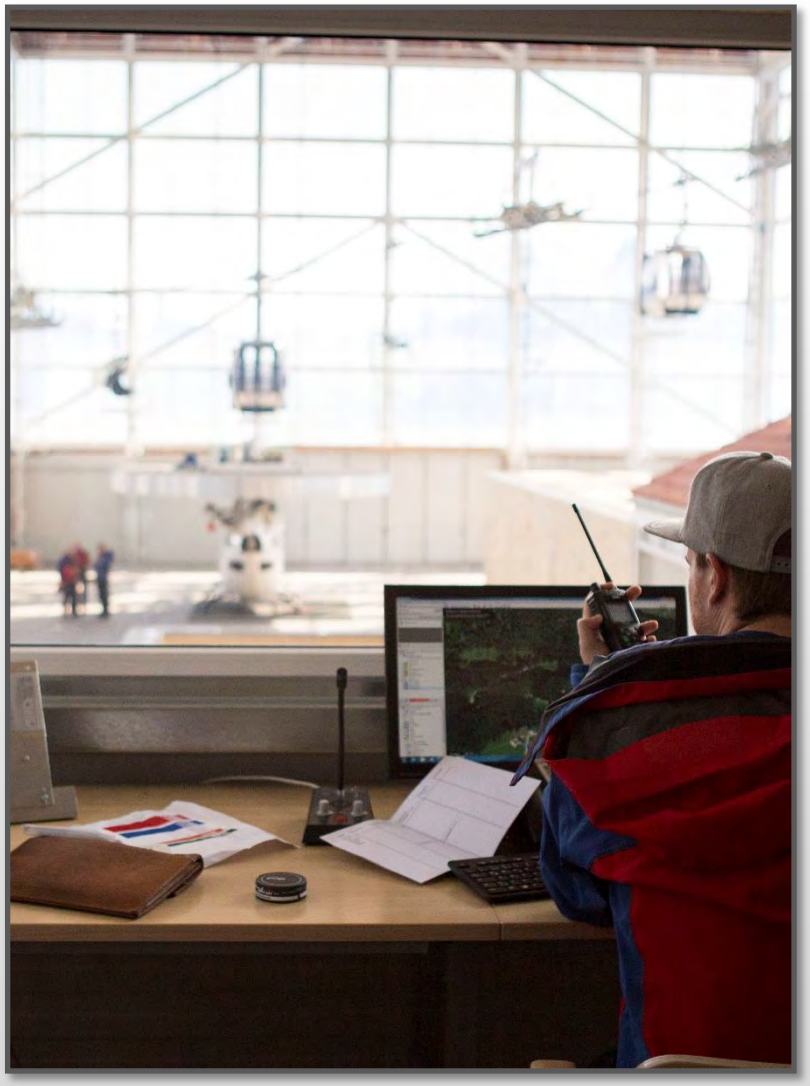
Training Environment

- Stationary or temporary training environment for:
  - Climbing walls and sloppy terrain
  - Building mock up with different roof types
  - Pool with wild water simulation
  - Heliports
  - Wind turbine mock-up
  - Cable car systems
  - Forest evacuation
  - Power poles
  - Others on request

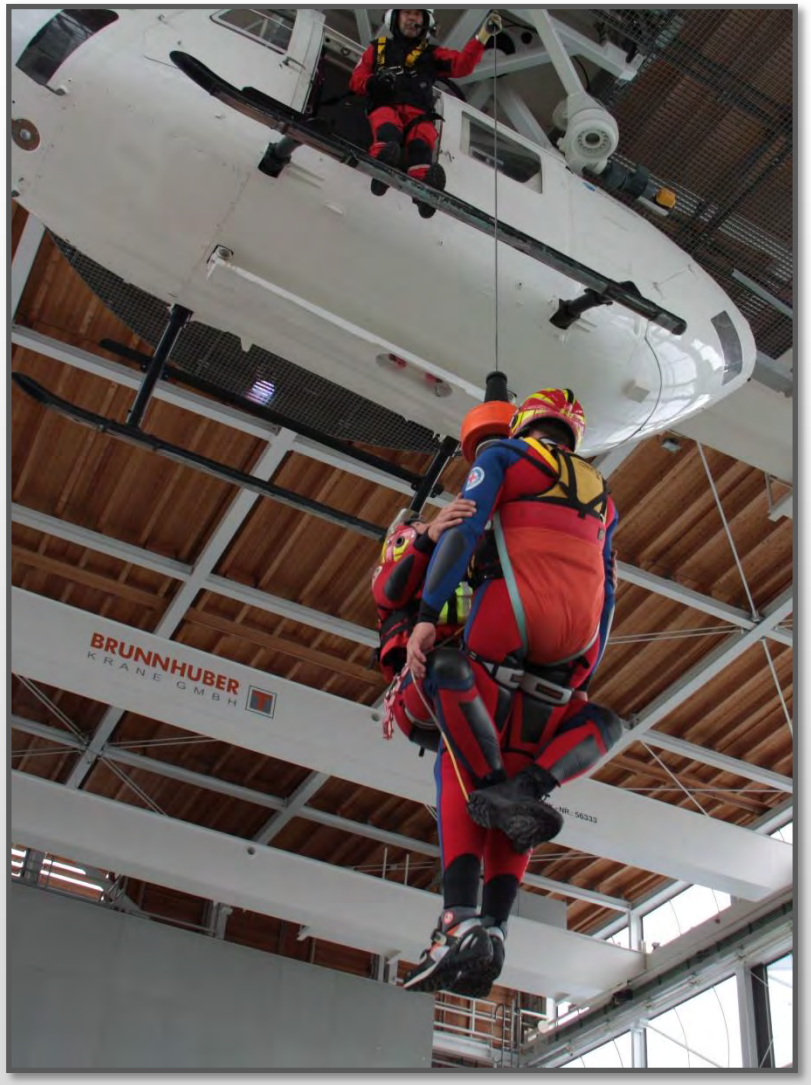
Training Possibilities

- Training of basic skills for additional aircrew members especially rescuers, doctors and winch operators
- Familiarisation and practising of the whole rescue hoist procedure
- Professional usage of rescue equipment, like stretchers, rescue slings, harnesses and restraint systems
- Training in different environmental situations:
  - Darkness
  - Rotor downwash
  - Sound

Full Mission Training



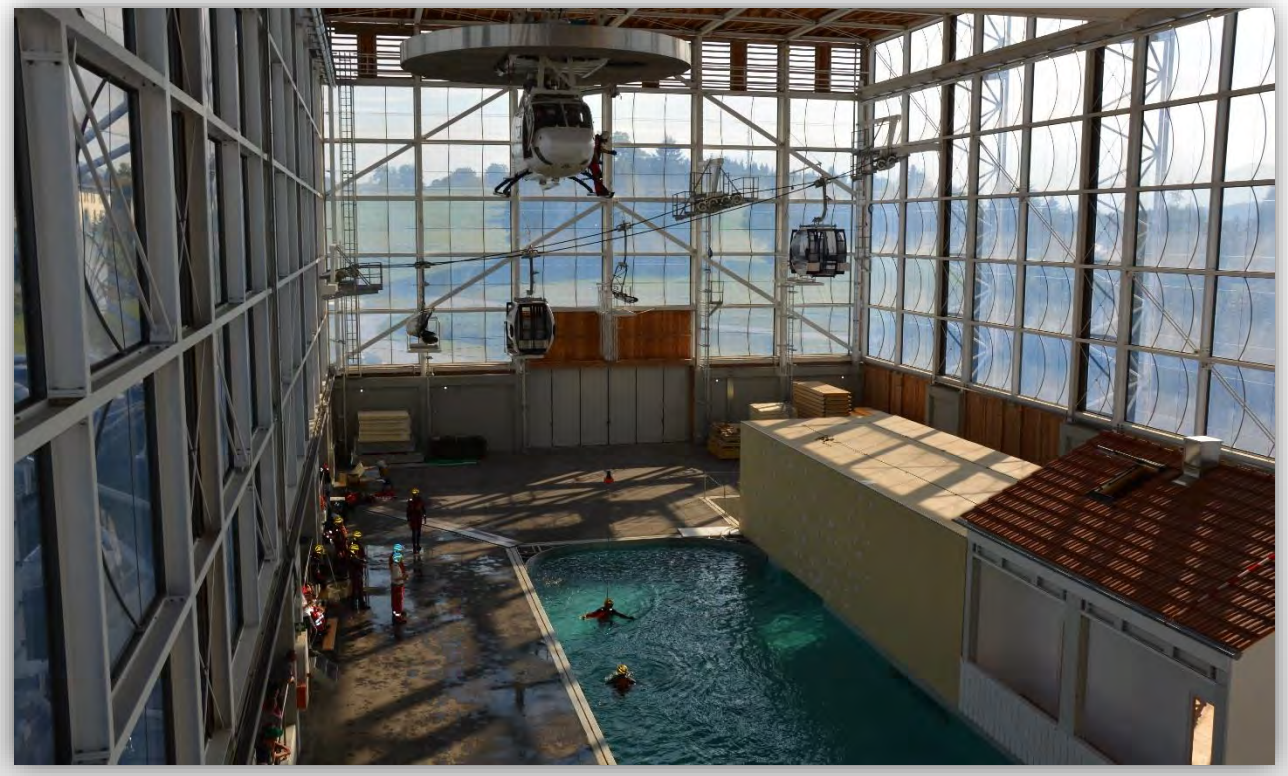
Full Mission Training



Full Mission Training

Full Mission Training

Water Surface Evacuation



- Practising of water surface evacuation
- Usage of sea survival equipment
- Evacuation from life rafts
- Simulation of hazardous situation during white water conditions

Cable Car and Chair Lift Evacuation

- Practising of different evacuation techniques for:
  - Chair lifts (2–4 seats)
  - Cable car evacuation
    - Door or roof hatches
  - Securing and hoisting of injured people

Assembling or Repair

- Practising of helicopter supported repair and maintenance work:
  - Cable car equipment
  - Electrical power poles
  - Cranes
  - Wind power plants
  - Telecommunication equipment
  - Oil rigs
  - Offshore maintenance

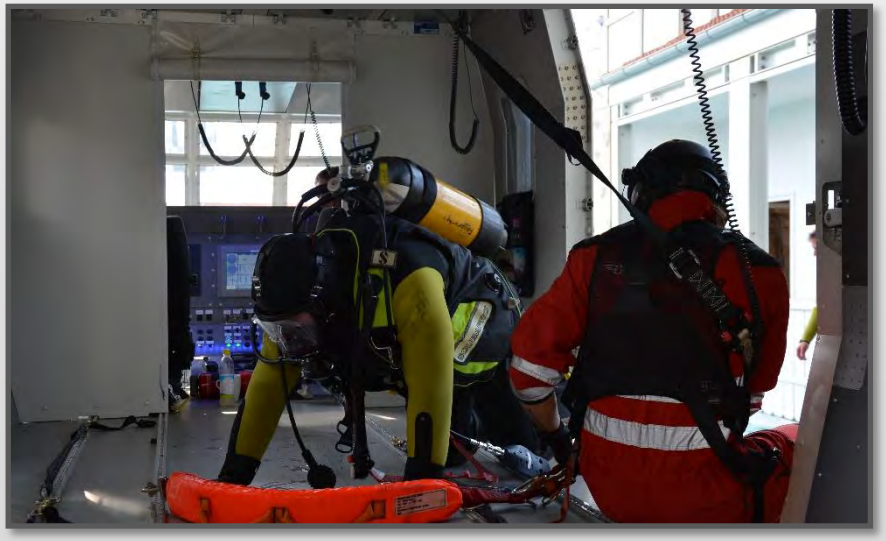
Police, Special Forces, Marines

- Fast-roping and speed rappelling (abseiling):
  - Training of sliding down simultaneously of several people
  - This technique allows deploying troops from a helicopter in a speedy way.
  - For example a Black Hawk rear crew can be settled down within 15-18 seconds.

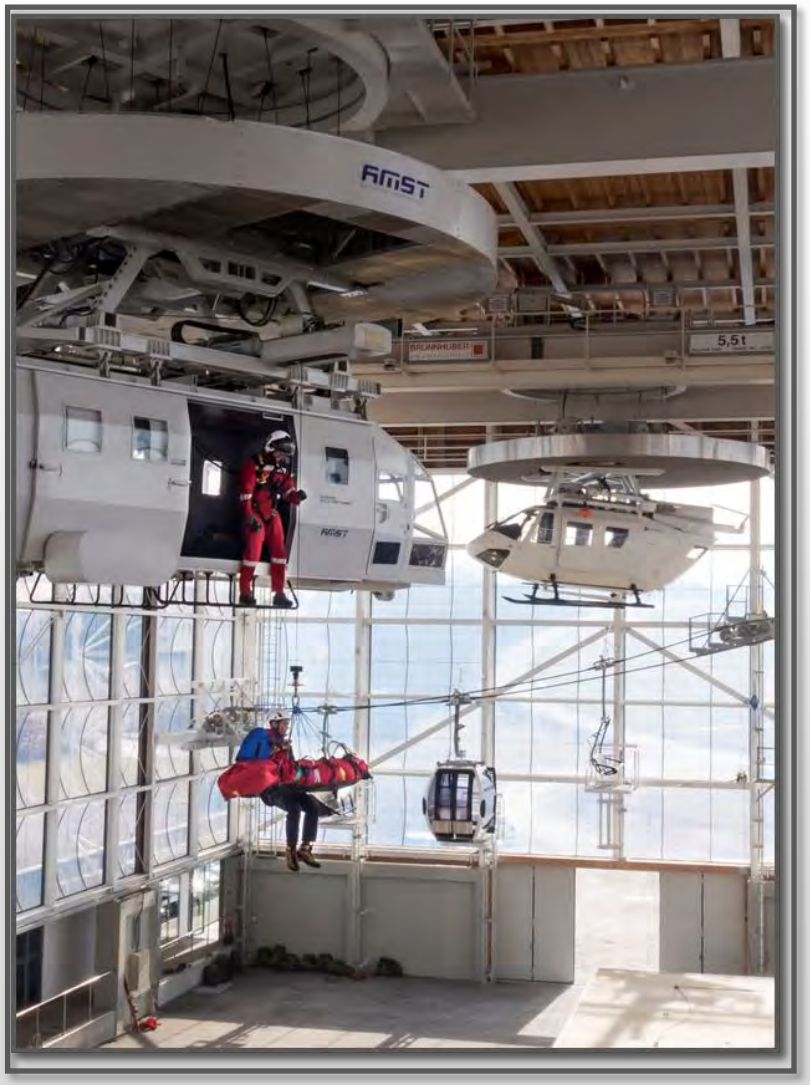
Military – Crew Training

- Training of combat MedEvac:
  - Mission preparation
  - Get on the helicopter
  - Take off and landing
  - Get out the helicopter
  - Securing the landing area
  - Evacuation of injured person
  - First aid training
- Simulation of combat scenarios
  - Using different environmental mock up or video walls combined with projection systems
  - Integration of door gunner simulators

Rescue Dogs, Rescue Divers, Cave Rescue Teams

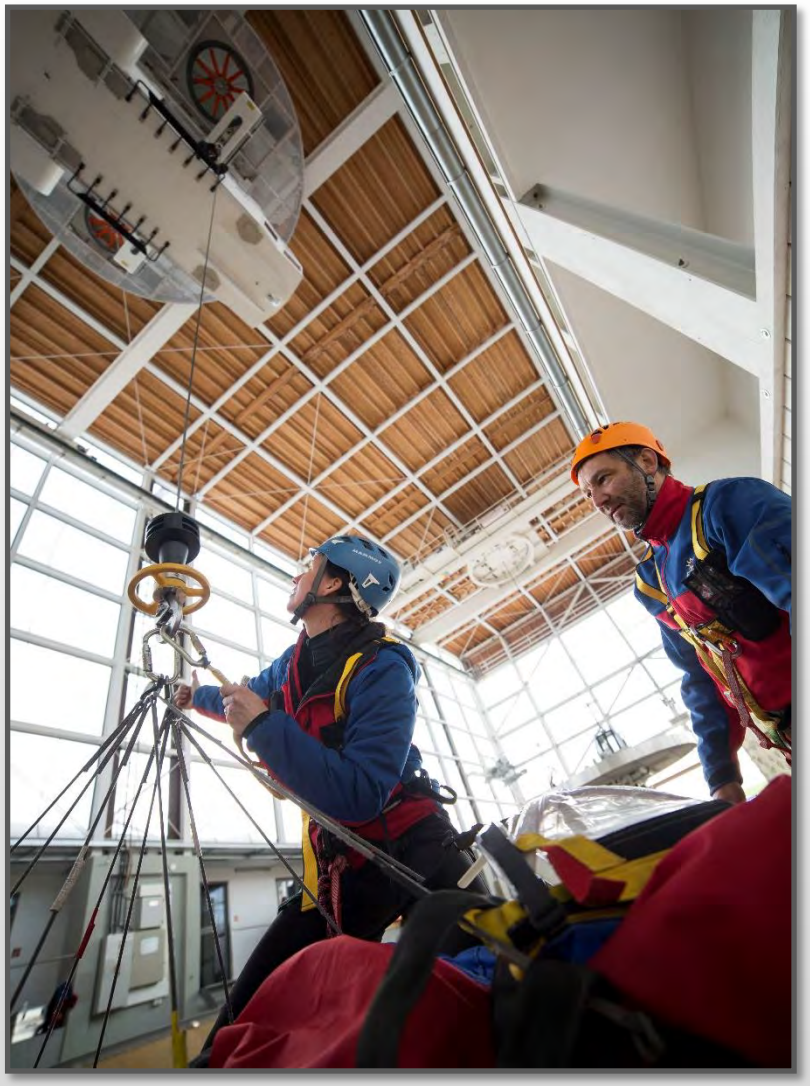


User Groups

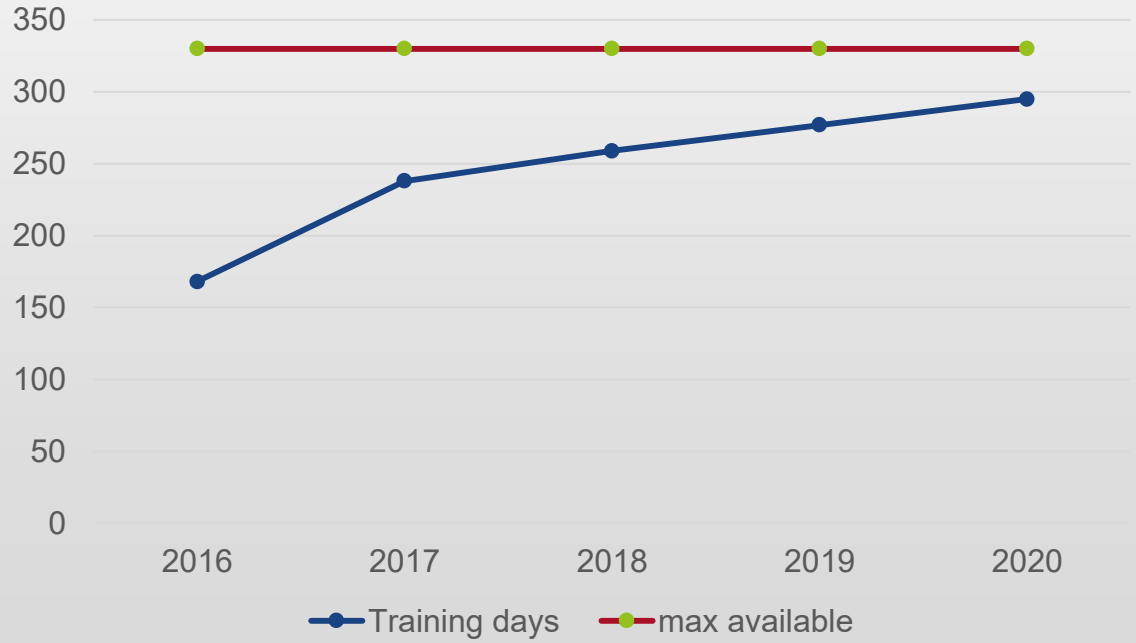


- German Federal Police
- Bavarian State Police
- Fire Fighters
- Mountain Rescue Teams national
- Mountain Rescue Teams international
- SAR-Teams national
- SAR-Teams international
- HEMS Operator national
- HEMS Operator international
- Cable Car Operator
- Cave Rescue Teams
- …

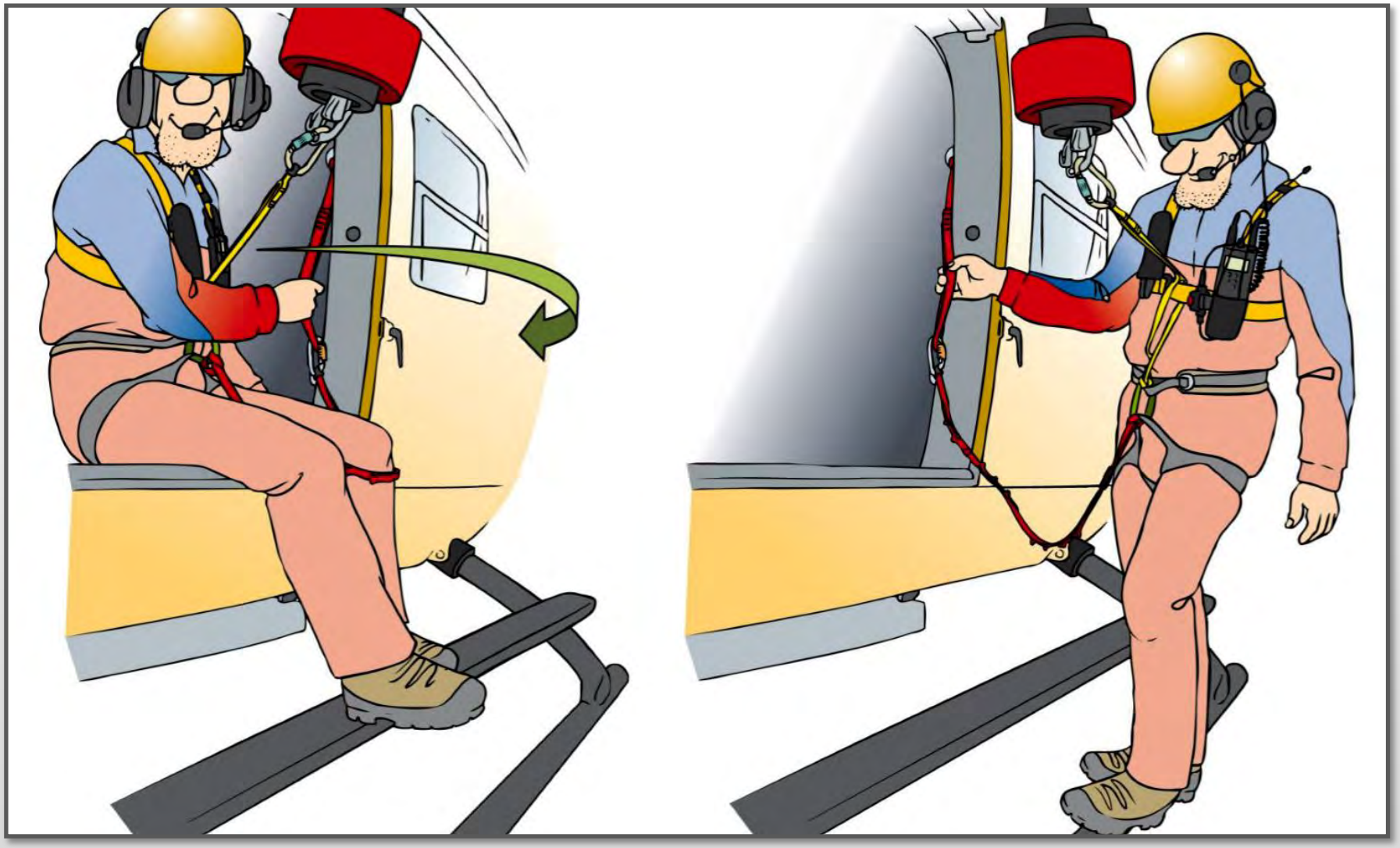
Training Statistics



- Training days 2016: 168
- Training days 2017: 238
- Training days 2018: 259
- Training days 2019: 277
- Training days 2020: 295 expected

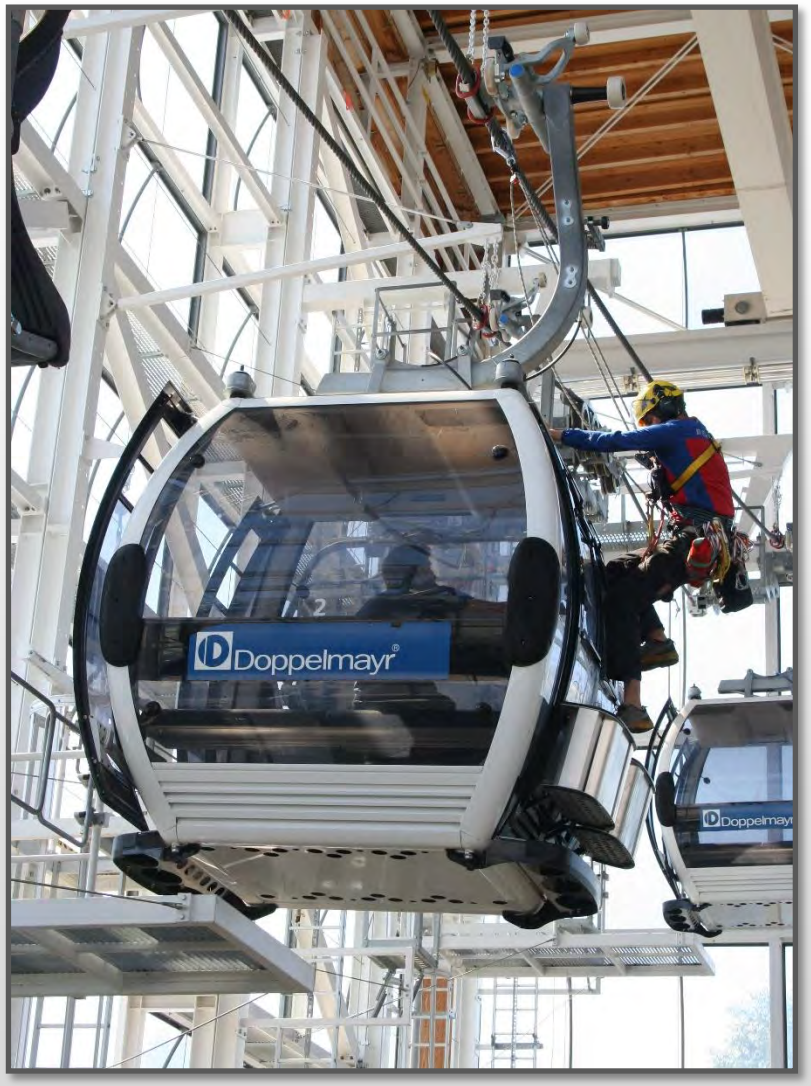


Benefits – Standardization of Procedures



Benefits – Safety

- Safe training environment
- Flight risks eliminated
- Training of high risk situations
- No accidents in 10 years of operation



Benefits – Efficiency

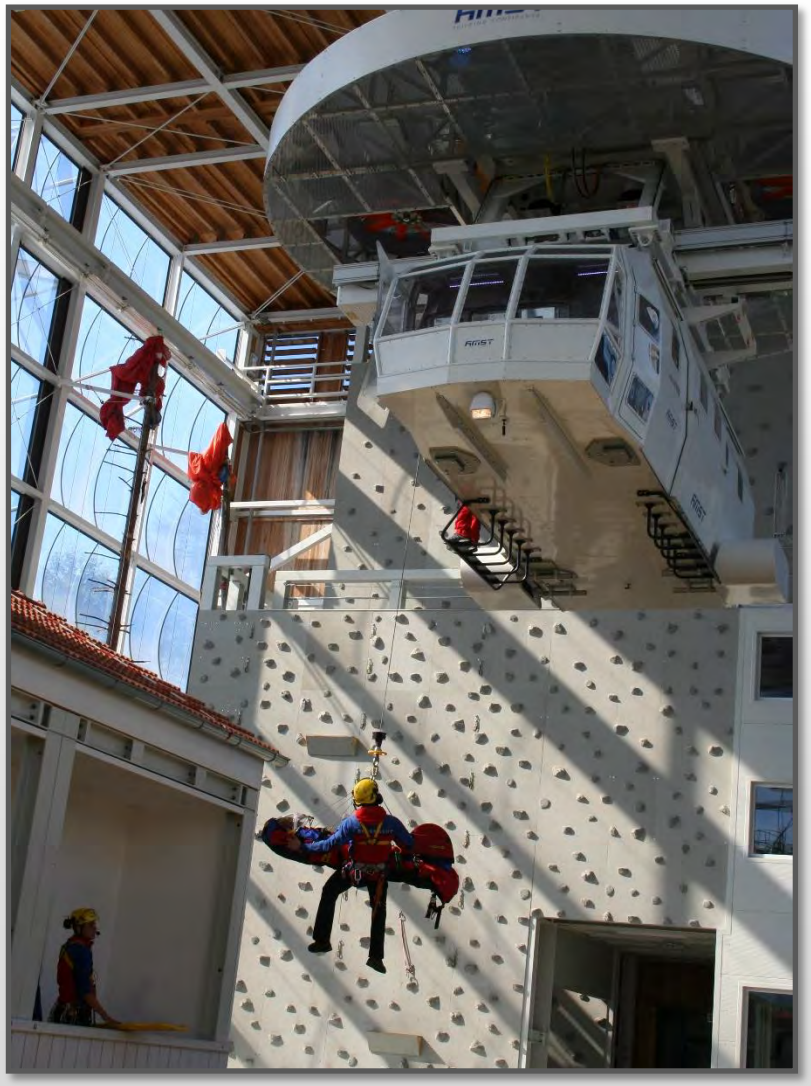
- Training intensity 10 times higher
- No change of pilot
- No refuelling
- No reduction of helicopter lifetime
- Training 24/7

Benefits – Step by step training

- Scaleable training condition and workload
- Direct feedback
- Training can be stopped anytime
- Repeat on demand

Benefits – Costs

- Minimized training costs
- No emissions
- No noise
- No troubles with the neighbourhood

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SAVE COSTS
SAVE RISKS
SAVE LIVES
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CONFIDENCE.