



ERWIN STOLPE

STANDARDISATION IN AIR RESCUE

Perth, 01 Sep 2011

23rd ASA Scientific Meeting

Binding regulations in the Aeromedical Environment



- JAR OPS 1 (planes)
- JAR OPS 3 (helicopters) -> EASA OPS
- FCL 1 (flight crew licensing airplanes)
- FCL 2 (flight crew licensing helicopters)
- Staff requirements acc. to emergency rescue regulations
- Guidelines (ILCOR, AHA, ERC...)
- CS 23/25 (planes)
- CS 27/29 (helicopters)

Technical Standards: From History to Future



- 1917 German Norming Institute
- 1976 German Norm DIN 13230
- 1980 Austrian Norm
- 2006 1st European Norm
- 2008 Actual Norm 13718:2008
- 2011/12 Revision 13718-1 and 13718-2

CEN/TC 239
Date: 2007-01

prEN 13718-1:2007
CEN/TC 239
Secretariat: DIN

**Medical vehicles and their equipment — Air Ambulances — Part 1:
Requirements for medical devices used in air ambulances**

Medizinische Fahrzeuge und ihre Ausrüstung — Luftfahrzeuge zum Patiententransport — Teil 1: Operationelle und technische Anforderungen an Luftfahrzeuge zum Patiententransport

Véhicules sanitaires et leur équipement — Ambulances aériennes — Partie 1: Exigences pour les dispositifs médicaux utilisés dans les ambulances aériennes

Descriptors: ambulance, air ambulance, emergency helicopter ambulance, medical devices, interface, interchangeability, interoperability, patient care, rescue system

Document type: European Standard
Document subtype:
Document stage: CEN Enquiry
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prEN 13718-2:2007
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Secretariat: DIN

**Medical vehicles and their equipment — Air ambulances — Part 2:
Operational and technical requirements of air ambulances**

Medizinische Fahrzeuge und ihre Ausrüstung — Luftfahrzeuge zum Patiententransport — Teil 2: Operationelle und technische Anforderungen an Luftfahrzeuge zum Patiententransport

Véhicules sanitaires et leur équipement — Ambulance aérienne — Partie 2: Exigences pour les dispositifs médicaux utilisés dans les ambulances aériennes

Descriptors: ambulance, air ambulance, emergency helicopter ambulance, medical device, interface, interchangeability, interoperability, patient care, rescue systems

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EN13718-1/-2 (2008): Elements



- Technical Performance of the helicopter in terms of air rescue
 - ▣ Compliance with JAR-OPS-3 HEMS OPS
 - ▣ High main rotor
 - ▣ Twin engine
 - ▣ Tail rotor safety
 - ▣ Quick take off possibility
 - ▣ Short shut off period (incl. rotor brake)
 - ▣ Skids

EN13718-1/-2 (2008): Elements



- Cabin
 - Loading from rear and side door
 - Sufficient space at head and chest allowing medical interventions immediately and continuously
 - All vital medical equipment must be reachable from medical attendant seat
- Equipement
 - Medical minimum equipment list (HEMS, HICAM, FW)
- Further technical provisions for flight and patient safety (e.g. gas supply, electricity, lighting etc.)

Cabin Dimensions

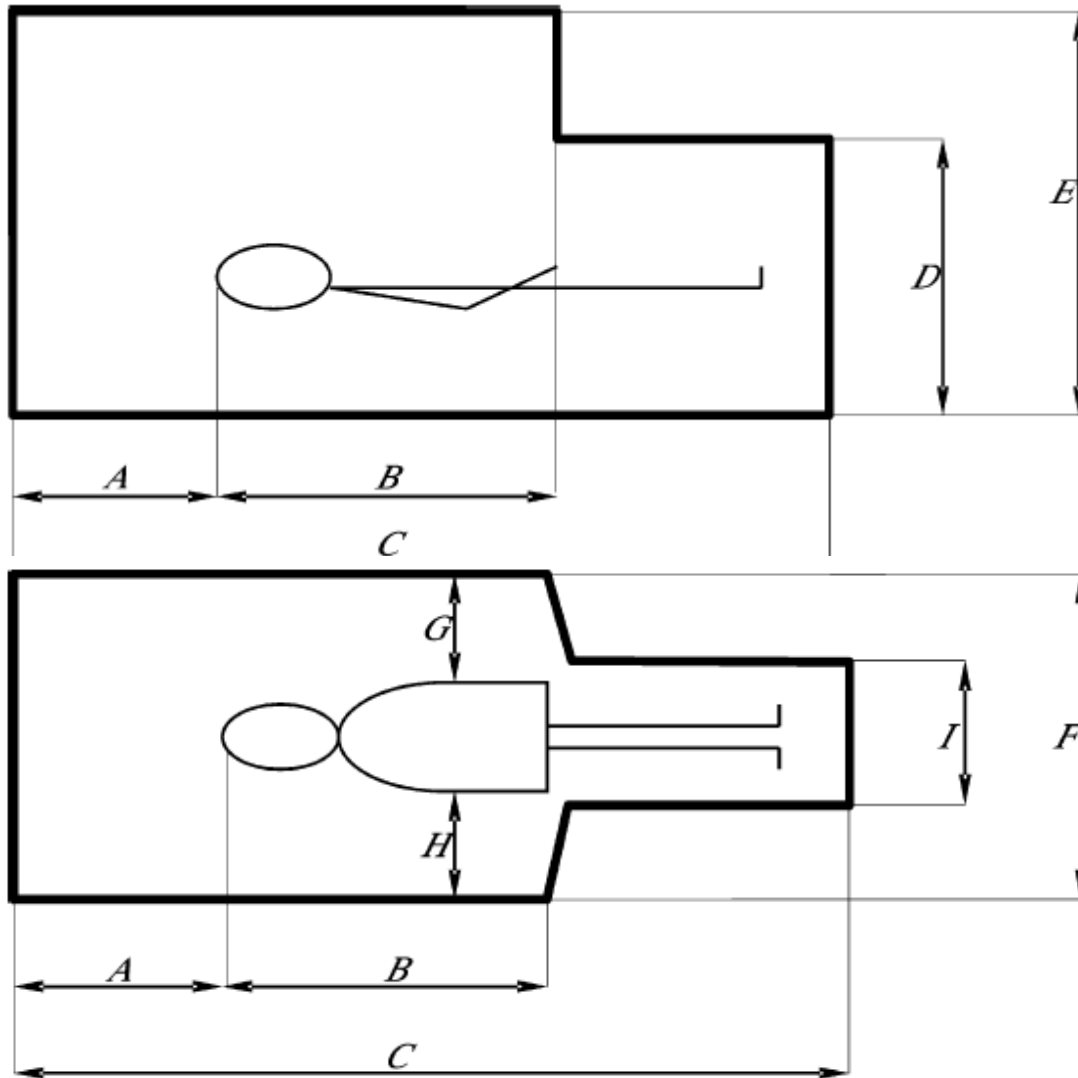


Table 2 – Dimensions for Air Ambulances

All dimensions in mm.

	HEMS	HICAMS	Fixed wing
Clause	5.2.2	5.3.2	5.4.2
A	400	650	650
B	700	700	700
C	2400	2650	2650
D	700	700	700
E	1150	1250	1250
F	750	1300	1300
G	250	600	600/400
H	50	50	50
I	750	750	750

Personnel acc. to EN13718



Flight Crew

“The roles and responsibilities of flight crew are outlined in the regulations JAR-OPS 1 or 3 and JAR-FCL 1 or 2
Flight crew should be able to assist the medical personnel””

Medical Crew

“All medical personnel who work regularly with Helicopter Emergency Medical Service and Fixed Wing air ambulance services.”

Medical Minimum Equipment List



Generic Medical Device Group	Generic devices
Additional equipment	1
Bandaging and nursing devices	10
Communication equipment for medical personnel	4
Devices for injection and infusion	6
Devices managing of life-threatening problems	5
Isolated extremity and upper spinal immobilisation devices	4
Medical devices for diagnosis and monitoring	8
Medicinal products (drugs)	4
Patient transfer devices	7
Rescue and protection equipment etc.	17
Ventilation and respiration devices	15
12 groups	81

Ventilation and respiration devices



Generic device group	Examples of European Standards	HEMS	HICAMS	FWAA
Stationary oxygen, with a quick-connection	EN ISO 15002, EN ISO 5359, EN 737-1, EN ISO 7396-1 and -2, EN ISO 10524-1	2 000 l	3 000 l	3 000 l
Portable oxygen, min. 400 l, with a quick-connection	EN 737-1, EN ISO 10524-1	2	2	2
Nebulization device		X	1	1
Transport ventilator with controlled and assisted ventilation	EN 794-3	1	1	1
CPAP-systems a		X	1	1
PEEP-valve b, adjustable or set		1	1	1
Intensive care ventilator	EN 60601-2-12	-	X	X
Stationary suction device c	EN ISO 10079-1, EN ISO 10079-3	1	1	1
Portable suction device	EN ISO 10079-2	1	1	1
Intubation devices d	EN ISO 7376, EN 1281-2, EN ISO 5356-1, EN 12342	1	1	1
Endotracheal tubes with connectors	EN ISO 5366-1, EN 1782	1	1	1
Oropharyngeal airways	EN 12181	1	1	1
HME-filter		1	1	1
Tracheostomy kit e		1	1	1
Tube fixing materials		1	1	1

European Quality Standard



- Safe operation of aircrafts used as ambulances
- Interoperability
 - Flight operational
 - Medical
 - Technical
- Reference
 - Operators
 - Authorities
 - Insurers