

Instructions for use and maintenance, part 0

(Translation of the original German instructions for use and maintenance, AWA)

all lifting accessories



machinery directive 2006/42/CE

§ 1.d and .e, annex I, art. 1.7, 1.7.4, 1.7.4.2, 4

EASA CS-27./29.865 / ED Decision 2014/018/R, AMC/GM to Part-SPO – Amendment 9, AMC1 SPO.SPEC.HESLO.100

as well as all lifting accessories, slings and their components, load securing devices and anchor points which are not in conformity with machinery directive 2006/42/EC or EASA CS-27./29.865 (used with/on Annex I helicopters/MIL)

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Part	0	1	2	3	4
	Index	Definitions	Maintenance: steel	Maintenance: textiles	Use of the specific product

Revision : what is new or has been modified?

Preface

There are 2 reasons why we have decided to write these instructions for use and maintenance.

On the one hand, there is the noble intention to describe a product's characteristics and the appropriate use it was designed for, and, furthermore, to illustrate different options, alternative uses and further possibilities in combination with other matching products.

Hence, the production company and the users meet through the acquisition, maintenance and user training of a product and are driven by the same good intention: to employ a reliable product in such a way that safe handling is guaranteed over a long period of time.

On the other hand, however, there are judicial aspects to consider. In the present legal situation government bodies believe neither producers nor users are capable of acting in an appropriate and responsible way. Most regrettably, their presumption is confirmed again and again, as there are players, on both sides, who don't know what they are doing!

This unpleasant reality obliges the production companies to express themselves negatively with regard to their products, to impute "reasonably foreseeable misuses" to their clients and to illustrate not only a product's limitations regarding use, but also to list all thinkable prohibitions. Obviously, this procedure must be appropriately documented.

Our vision at **AirWork & Heliseilerei GmbH (A&H)** is to invest these 30 years of experience in flight operations and 20 years in product development in the designing of safe equipment for helicopter external cargo transport, while ceaselessly researching, testing, asking questions and creating new products.

In this spirit we also invested a lot of energy into these new instructions for use and maintenance, parts 1 – 4, by analysing, assessing and sorting out the last 15 years of experience – good and bad – and incorporating it into these instructions. Hopefully, we have been able to separate the essential from the unessential. But here again, the rule applies: however long the description, it will never be wholly exhaustive.

In every company there should be at least one person from the flight operations division or the technical department ready to pay the necessary attention and accept our offer to participate in a free training session about the correct employment of our instructions for use and maintenance when buying one of our products. Beyond that, we also depend on your feedback to better fulfil your requirements, so let's start talking!

Your A&H team

Symbols

Legend of advice and danger symbols

	Instruction		Advice		How to continue		Conformity
	ATTENTION		WARNING		DANGER		DAMAGE
	FORBIDDEN		HOT		REVISION		

Definitions: judicial aspects to consider

Handling of these instructions for use and maintenance (AWA) (Machinery directive 2006/42/EC, annex I, art. 1.7.4.1 and 1.7.4.2, Swiss VUV art. 32.a)

This AWA by AirWork & Heliseilerei GmbH (A&H) is divided in 4 parts (plus index)

- Part 1 Definitions refers to all products and their intended use
- Part 2 Maintenance: steel refers to the maintenance, repair and storage of steel parts – all types of components
- Part 3 Maintenance: textiles refers to the maintenance, repair and storage of textile parts – all types of components
- Part 4 Use refers to the specific use of the specific product (single instructions for each product)



- **The instructions (AWA) are an integral part of the product. In the absence of valid instructions, or without adequate training prior to product use, the latter cannot be considered safe.**
- **In the case of lending, demonstration, display, sale, discount trading or user training, all 4 parts of these instructions for use and maintenance (AWA) must be enclosed/attached.**

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Puch of the Swiss Army on vehicle hoist

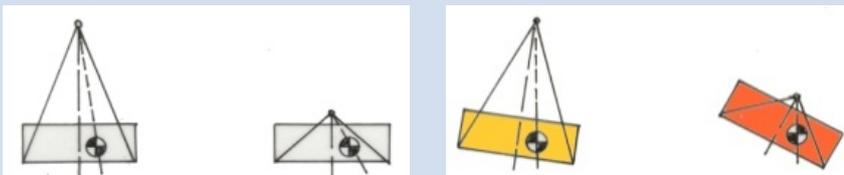


TLDS+ transport LongLine attached to AS 350 B3e



German Armed Forces CH-53 with TLM transport rope 90 kN TLM

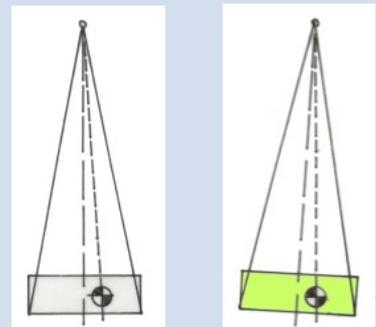
Short sling legs, < 3 m



Strong slanting of cargo, difficult to rule in flight

Extract from AWA, part 1, Lengths of ropes and/or sling legs

Long sling legs, > 4 m - < 6 m



Slight slanting of cargo, easy to rule in flight

Part 2 MRO of steel components and steel ropes

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9. Modifications to the original condition upon delivery	-/-	4
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Lifting accessory with manual cargo hook release (example)



Example: manual rope (models TLDS, TLM or TLK) with primary load ring, shock absorber, safety hook, rope, safety hook, stabilisation weight/secondary cargo hook (load element, model SLE1)



Swiss Army Cougar helicopter with ISSYS self-protection system: the mounting and securing system for the ammunition boxes was developed by A&H ENG and manufactured by A&H Equipment

Part 3 MRO Textiles

Index titles	Index chapters	Page
1. Maintenance, repair and overhaul (MRO) of textile components	1.1 Lifting accessories as well as slings and their components	1
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Lifting accessory with electric cargo hook release (example)



Example: electric rope (models TLL, TLP or TLPME) with primary load ring, shock absorber, safety hook, secondary load ring, rope, swivel joint (inside Goggel protective casing) and secondary cargo hook



Shock absorber rope lanyard, PA 3-strand laid protectors



Border rope, PES 3-strand laid



LN, knotless raschel PP netting



GVN2/KW2, knotted PES netting



Round sling, 3 to, with belt



Lifting strap with D-clamp



Whipping with label, resinated



PES sheathing, models TLDS/TLM/TLME and VGH



PES sheathing, model TLL



PA sheathing, model TLP

Part 4 Use of the specific product

Index titles	Index chapters	Page
Please note that depending on the product, the quantity, choice and complexity of chapters as well as the number of pages may vary.		
Use	Correct use	--
	Disclaimer	--
User training	-n/a-	--
Your <i>(product)</i> (description of the single components)	Design, construction and technical data	--
	Parts list	--
Parameters, limit conditions, interfaces	Configurations allowed	--
	Helicopter service for professional load transport	--
	Loads allowed; usable limits	--
	Interfaces to other systems or components of a lifting accessory	--
Preliminary procedures	Check list for first-time operation	--
	Start-up procedure	--
	End of operation procedure	--
Restoration / repackaging	Nota bene	--
	Coiling ropes	--
	Advice for coiling ropes	--
	→ AWA part 1	--
Transport / storage	-n/a-	--
Possible inappropriate uses	Ways of using the <i>(product)</i> that are inappropriate and for which it is not designed	--
	Be careful to avoid other possible risks	--
	Residual risk	--
Maintenance and repair	→ AWA part 2 MRO steel and → AWA part 3 MRO textiles	--
Engineering & manufacturer	Conditions for product use	--
	Picture credits	--
	Question to the persons responsible for training and work materials	--
Appeal	-/-	--

All products by AirWork & Heliseilerei GmbH (A&H)



- meet the requirements of the EU/EASA regulations regarding operation (ED Decision 2014/018/R, Annex VIII Part-SPO)
- and manufacturing (ED Decision 748/2012 EASA Part 21 G) and EASA CS-27./29.865);
- exceed the requirements of machinery directive 2006/42/EC;

As a helicopter operator, the use of AirWork & Heliseilerei GmbH (A&H) products always puts you on the legal, up-to-date and safe side.



A&H Engineering – A&H Equipment – A&H Services – A&H Expert

Application and certification/qualification codes of products

(this page is also published separately)

Application code	Certification/qualification code
A Helicopter External Sling Load Operation HESLO 1 to 4 (Logging excluded)	i CE - machinery directive 2006/42/EC, Annex I, Art. 4.1.2.5 (LA, SE), with EC declaration of conformity
B Helicopter External Sling Load Operation HESLO 1 to 4 (Logging included)	ii CE - machinery directive 2006/42/EC, Annex I, Art. 6 (persons), with EC type examination certificate
C Helicopter External Sling Load Operation HESLO 3 (Logging only)	iii CE - machinery directive 2006/42/EC, others, with EC declaration of conformity
D Helicopter External Sling Load Operation, Auxiliary Material (no WLL)	iv CE - EN 1677:2000+A1:2008 (fittings), with EC declaration of conformity
E Load securing inside helicopters	v CE - EN 1492-1, EN 1492-2, EN 1492-4, EN 13155 (textile slings, others), with EC declaration of conformity
F Helicopter External Load Operations, Annex I (NATO/MIL)	vi other EN, DIN, ISO, VDI standards (on request), with Certificate of Conformance COC
G Load securing inside helicopters, Annex I (NATO/MIL)	vii regulation (EU) 2016/425 on Personal Protective Equipment, category III, PPE against falls/rescue devices, with EU type examination certificate
H Human External Cargo (HEC, complex PCDS)	viii CE – EN standards on PPE against falls as defined by label, with EC type examination certificate
I Human External Cargo (HEC, simple PCDS)	ix EASA ED Decision 2014/018/R, Annex VIII, Part SPO, AMC1 SPO.SPEC.HESLO.100(c)(3)
J Passenger transportation inside aircraft (EMS)	x EASA ED Decision 2014/018/R, Annex VIII, Part SPO, AMC1 SPO.SPEC.HEC.105(d)
K PPE against falls inside helicopters (securing of persons, HHO, HEMS)	xi EASA CS-27./29.865 NHEC, with Certificate of Conformance COC
L PPE against falls attached to rescue hoists and/or fixed ropes	xii EASA CS-29./29.865 HEC, complex PCDS, with STC, FORM 1
M Other devices	xiii EASA CS-27./29.865 HEC, simple PCDS (EASA CM-CS-005), with EU- type examination certificate
N Operations in open terrain (sledges, carry handles) involving a crane or a lifting platform (fire brigade)	xiv STANAG, with Certificate of Conformance COC
O Operations involving the rescue winch or the fixed rope of a rescue helicopter (with certified sling)	xv LufABw LTF 1670-003 (DE), others, with Certificate of Conformance COC
P Operations involving the stretcher of a rescue helicopter	xvi Marshaller Syllabus (FH-SY, FOCA 1996)
Q Other operations/devices	xvii DGUV Information 214-911 "Safe operation of helicopters during aerial work"
R Load securing into helicopter ESA Part 21 G (tie-down equipment)	xviii others
D S Drones, with external load similar to HESLO 1 – 4, without Logging	xix none
NCAGE SAC17	xx CH SR 930.115 RPPE
	xxi CH SR 911.30 PrLL, CH SR 930.111 RoPS, CH SR 819.14 MR
All products are equipped with a serialized, customized (name of client) and traceable label.	
The CE marking indicates product conformity with machinery directive 2006/42/EC or Regulation (EU) 2016/425 PPE (in A&H's case mainly PPE of category III, i.e. protection against falls from a height.)	
The safety factors demanded by machinery directive 2006/42/EC have proven to be insufficient for helicopter operations. Therefore, our calculations and designs are based on the most recent values and in accordance with EASA CS-27./29.865 and corresponding articles.	
Also check the products illustrated at www.air-work.swiss and the instructions for use and maintenance (AWA).	

A single phone number: 0041 41 420 49 64. Just give us a call – we look forward to assisting you!

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Member of ...



Abbr.	Meaning	PDF search keys (right mouse button in pdf-file = search)
A&H	AirWork & Heliseilerei GmbH	accessories/ fittings – ampere – application – belts – cargo hook – CH law – chains – configuration – construction work – correct use – damage – damages – declaration of conformity – designated use – Design Load Limit – DGUV – DIN – directive on work equipment – dropping – dynamic – EASA CS-27./29. – EC declaration of conformity – electric power supply – elongation – employer – EN standard – EU law – exception – expert knowledge – extension/lengthening – External Load – FIBC – flapping – flight operations equipment – foreseeable – heavy – HEC – Helicopter External Sling Load Operation – HESLO – hoisting belt – horizontal – Human External Cargo – incorrect use – inspection – joker – knots – labels – law on safety of products – leg – life time – lifting accessory – limit states – limits – load case / loading condition – Load securing – loads – logging – longline – low-torque swivel – mach. dir. – machinery directive – maintenance – Marshaller Syllabus – marshalling – material – misuse – multiple-leg sling –NHEC – Non-Human External Cargo – normal operation mode – operative life – ordinance on safety of machines – original conditions – Part-SPO – personnel responsible for maintenance – placed on the market – primary cargo hook – product – product safety (directive) – prohibition – qualified person – ratio – reasonably – recoil – repair – ropes – round sling – round steel chain – safe load – shackles – shock absorber – shortline – shrink hoses – slinging – slinging equipment – special operation modes – splice – storage – suitability – Swiss Army thimble – tactics – textile – transport flights – tie-down equipment – tying – uncoiling – usage – use – user – vertical – wire rope choker – work equipment Hash tags # logging #helilogging #longline #shortline #HESLO #slingload #loadlifting #HUSLE #underslung #ropes #dymeema #dymeemaropes #ahequipment #helinet #airbushelicopters #bellhelicopters #leonardohelicopters #daisybell #drones #rescue #simplePCDS #complexPCDS #humanexternalcargo #ahspace #space #loadsecuringnet #pilatusaircraft #tiedownequipment
AT	Austria	
AWA	Instructions for use and maintenance	
CH	Switzerland	
d	Diameter	
DE	Germany	
DGUV	German Social Accident Insurance	
DIN	DIN standard	
EC	European Communities (economic)	
EH-St	End holder steel (screwable)	
EN	European Standard	
EU	European Union (political)	
EXP.	Expiry Date	
FCOS	Federal Coordination Commission of Occupational Safety	
FH-SY	Marshaller Syllabus	
FIBC	Flexible Intermediate Bulk Container	
FLS	Four-leg sling	
FOCA	Federal Office for Civil Aviation	
GVN2	Animal net for big animals, 2nd generation	
HMPE	High module polyethylene	
IBC	Intermediate Bulk Container	
KN	Kilonewton (force)	
KVN2	Animal net for small animals, 2 nd generation	
L	Length (total)	
LA	Lifting accessory	
LS	Length of sling leg	
MaschV	Swiss council ordinance regarding machinery safety	
PA	Polyamide	
PE	Polyethylene	
PES	Polyester	
P/N	Part number	
PP	Polypropylene	
PROD:	Production date	
PrSG	Swiss law on product safety	
PrSV	Swiss ordinance on product safety	
r	Radius	
REV:	Revision	
SL	Slings / slinging equipment	
SLE	Load element	
S/N	Serial number	
SP	Slinging point	
ST	Slinging technique	
THLS	Three-leg sling	
TL..	Abbreviation Of the P/N of each line	
TWLS	Two-leg sling	
UV	Ultra violet rays	
UVG	Swiss Federal law on accident insurance	
VM-DP	Shock-absorbing lanyard	
VUV	Swiss council ordinance on accident prevention	
WE	Work equipment	
WLL	Working Load Limit	

Your service partner

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 NATO NCAGE SAC17



NCAGE SAC17

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