

DSLR LIGIIT-JIB



DSLR Light-Jib Operating Instructions

English





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Table of Contents

1.		Device Information	4
	1.1	Delivery Contents	4
	1.2	Responsibilities of the Manufacturer	5
	1.3	Responsibilities of the Operator	6
	1.4	Exploded View with Numeration	6
	1.5	External Interfaces	7
	1.6	Legal Notices	7
2.		Operating Instructions	8
	2.1	How to Use These Operating Instructions	8
	2.1.1	Labels on the Device	8
	2.1.2	Labels in this Manual	9
	2.2	Service Address	10
3.		Safety Notices	10
	3.1	General Manufacturer Safety Notices	10
	3.2	General Usage Safety Notices	11
	3.3	General Testing Safety Notices	11
	3.4	Proper Use of the DSLR Light-Jib	11
	3.5	Personnel Requirements	12
	3.6	Safety Related Environmental Conditions	12
	3.7	Possible Misapplications	12
	3.8	Residual Dangers and Protective Measures	13
4.		Technical Information	14
	4.1	Technical Data	14
	4.2	Counterweight Table	14
5.		Assembly and Operation	15
	5.1	Main Components	15
	5.2	Optional Accessories	17
	5.3	Assembly	18
	5.3.1	Mounting the Tripod and Crane Support	18
	5.3.2	Mounting the Camera	20
	5.3.3	Mounting the Counterweight Sleeve	21
	5.3.4	Loading Counterweights	22
	5.3.5	Balancing the DSLR Light-Jib with Counterweights	23
	5.3.6	Dismounting the Camera	25
	5.3.7	Mounting the Monitor Holder and Monitor	26
	5.4	Jib Head Angle Adjustment	27
	5.5	Jib Head Parallelogram Adjustment	28
	5.6	Horizontal and Vertical Brakes	29
	5.7	Adjusting the Handle	29
	5.8	List of Recognized Hazards Identified as Non-Relevant	30



1. Device Information

1.1 Delivery Contents

1.	1 x carbon main pipe and parallelogram pipe including head and center support with integrated horizontal and vertical brakes; bubble level	0	
2.	Integrated adapter for tripod mounting 75mm/100mm ball socket size 3/8" thread	0	
3.	1 x retractable counterweight tube	0	
4.	1 x sleeve for counterweight tube	0	
5.	1 x quick pin for sleeve 6.2mm	0	
6.	1 x quick pin for crane head 6mm	0	
7.	1 x clamp fastener for counterweights	0	
8.	1 x cork handle end stop with M8 thread	0	
9.	1 x adjustable cork handle with tube clamp	0	
10.	1 x carrying case	0	
11.	1 x operating instruction manual	0	
12.	1 x ¹ /4" screw + 1 x 3/8" screw	0	
13.	1 x monitor holder with 1⁄4" screw	0	

Packed on (date):

Signature:



1.2 Responsibilities of the Manufacturer / EC Declaration of Conformity

EC Declaration of Conformity

Manufacturer / Distributor MovieTech AG Martin-Kollar-Str. 9 D-81829 Munich

Hereby declares that the following product

Product Identifier:DSLR Light-JibManufacturer:ABC ProductsSerial Number:Series and Type Identifier:Crane ProductDescription:The DSLR Light-Jib was developed for the photographic and film industries to enable weightless tracking shots.

All applicable provisions of the aforementioned directive as well as further directives (hereinafter) apply, including changes applicable at the time of declaration.

The following harmonized standards were adhered to:

EN ISO 12100-1:2003	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology (ISO 12100-1:2003)
EN ISO 12100-2:2003	Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles (ISO 12100-2:2003)
EN ISO 14121-1:2007	Safety of machinery - Risk assessment - Part 1: Principles (ISO 14121- 1:2007)

The following national or international standards (or parts/clauses thereof) and specifications were applied:

Name and address of the individual authorized to assemble technical documents:

Mr. Dipl. Ing. (FH) S. Reibenspiess; Mr. F. Strassmann

Location: Munich

Date: 1.24.2011

5. heiter floor

Mr. Reibenspiess

Mr. Straßmann



1.3 Responsibilities of the Operator

Maintenance Requirements

Maintenance of the DSLR Light-Jib may only be carried out by MovieTech AG or an authorized contractor.

Disposal

The DSLR Light-Jib may not be disposed of with household waste. It must be brought to a collection point (please check with your municipality) or disposed of through your dealer/manufacturer. The delivery address is given on the product label. This ensures for an environmentally friendly disposal.

Care

It is recommended that the DSLR Light-Jib be wiped down with a damp, clean cloth when dirty. Avoid corrosive or aggressive cleaning agents.

1.4 Exploded View with Numeration

NOTICE Use the part numbers specified when ordering replacement parts!

DSLR Light-Jib





1.5 External Interfaces

The DSLR Light-Jib is autonomous.

1.6 Legal Notices

Limits specified by the manufacturer must be observed. Exceeding these limits must be avoided under all circumstances.

In the event of an accident due to negligence or improper use, the manufacturer cannot be held liable for damages or injuries. The sequence stated in the operating manual for assembly and disassembly must be observed.

Only original parts may be used for product maintenance.

Accessories from other manufacturers must not restrict the usage or safe operation of the DSLR Light-Jib!

Individuals responsible for the operation of the DSLR Light-Jib must have read and understood the original operating instructions. In the event of questions regarding safe operation, the manufacturer should be contacted. Contact information can be found, among other places, on the central joint of the DSLR Light-Jib.

Service life of the device:

The service life is limited by material wear and fatigue. Service life is therefore dependant on the frequency of use and the environmental conditions to which the DSLR Light-Jib is exposed.



2. Operating Instructions

We thank you for choosing the DSLR Light-Jib, as well as for your trust. The DSLR Light-Jib allows gliding tracking shots in horizontal and vertical directions. We wish you much enjoyment and success with your new ABC-Products DSLR Light-Jib!

Your DSLR Light-Jib has the follow features:

- short assembly and disassembly times
- low transport weight 3.9kg
- mechanical crane head angle adjustment
- adaptable for tripods with 75mm and 100mm ball sockets

Please carefully read these operating instructions before using your new device for the first time. It contains everything you need to know to operate the tripod while avoiding personal injury or property damage.

Carefully observe all safety precautions in this instruction manual.

Keep these instructions in a safe place. Give these instructions to the new owner, should you sell the device or otherwise relinquish ownership.

Inform other users of the necessity to read and understand the operating instructions before use.

2.1 How to Use These Operating Instructions

2.1.1 Labels on the Device







2.1.2 Labels in this Manual

Label	Definition
	Alerts you to the handling and consequence of safety information.
WARNING	Alerts you to a dangerous situation, which could lead to significant injury or death if not avoided.
CAUTION	Alerts you to a dangerous situation, which could lead to mild or moderate injury if not avoided.
NOTICE	Alerts you to possible property damage and other important information concerning your device.
Foot protection	Safety Shoes: Mandatory signs in accordance with ANSI (Z 535.3 - 2007) Definition: Foot protection
Fall down / drop	Fall Down/Drop Warning signs in accordance with ANSI (Z 535.3 - 2007) Definition: Fall down/downward movement – hazard for feet
bruise / crush	Bruise/Crush Warning signs in accordance with ANSI (Z 535.3 - 2007) Definitions: Crush – hazard for hands





Entering of Area Prohibited

Prohibitory sign in accordance with ASR A1.3 Appendix 1 (until now BGV A8, before VBG 125), DIN 4844-2 :2001-02 and DIN 4844-2/A1: 2004-05

Definition: Entering of area prohibited

2.2 Service Address

MovieTech AG Martin-Kollar-Str. 9 D-81829 Munich E-Mail: info@movietech.de www.movietech.de Tel.: +49 (0) 89 43 68 91 3

3. Safety Notices

3.1 General Manufacturer Safety Notices

- Before first use, ensure the operating instructions have been read and understood.
- Do not leave the assembled jib unattended. Protect against unauthorized use.
- Limits specified by the manufacturer must be observed. Exceeding these limits must be avoided under all circumstances.
- The jib should not be assembled under the influence of alcohol, drugs, or other narcotics.
- Only qualified individuals should be assigned the responsibility of assembling, disassembling, and operating camera cranes and jib arms. This assignment must be made in writing if necessary.
- Beware of possible crushing hazards during assembly, disassembly, and operation (please see Assembly chapter and observe the special warning for each operational phase). Warning signs on the product and in the operating instructions must be followed!
- To avoid injuries, gloves must be worn during assembly and disassembly.
- Electrical equipment, for example monitors, must always be protected from wetness and moisture.



3.2 General Usage Safety Notices

- Observe the maximum camera weight of 4.5kg, as well as warning notices on the device, and special notices regarding stability and safe use.
- Do not leave the DSLR Light-Jib unattended. Protect against unauthorized use.
- Due to the risk of lightning strike, operation in the area of an approaching storm should be stopped.
- The DSLR Light-Jib can be used at an ambient temperature of -5℃ to +40℃
- Do not assemble or disassemble if winds exceed the maximum allowable speed of 50km/h
- The DSLR Light-Jib is suited for studio and limited outdoor use. The assembly location should not be sandy, dusty, salty, or wet.
- Striking the crane, especially the crane tubes, against objects or obstacles with hard edges, must be avoided due to possible risk of damage to materials. The manufacturer must replace damaged crane tubes and other components important for safety.

3.3 General Testing Safety Notices

- Before each use, safety must be ensured through a visual and functional test (in accordance with DIN15999)
- Specifically, pay attention to the following criteria
 - Unusual noises during movement,
 - Distortion (for example, bending, twisting),
 - Damage (for example, cracks, corrosion),
 - Missing parts (for example, cotter pins, fasteners)
- In the event of damage or distortion, the manufacturer must be contacted!
- Please observe all further safety notices in the following chapters!

3.4 Proper Use of the DSLR Light-Jib

The DSLR Light-Jib may be used only as intended. The DSLR Light-Jib is designed for horizontal and vertical tracking shots around the pivot point of the center section. The camera will have a weight between 1 to 4.5 kg. Through the balancing with counterweights, the camera can be moved effortlessly.



3.5 Personnel Requirements

Jib operators should be able to control the camera image as well as the operating range of the DSLR Light-Jib. Operation of the DSLR Light-Jib should always be gauged considering relevant safety aspects. The responsibility for safe operation lies with the user. Distances between the camera and other objects must always be gauged properly in order to avoid accidents and damage. Responsible handling of the product within the respective environment is assumed. Using the manual, operators need to familiarize themselves with and understand relevant safety aspects.

General Safety Notice:

While operating the DSLR Light-Jib, there is a risk of the head striking a performer.



verboter

Within the operation range of the DSLR Light-Jib, only the operator is allowed! For safety reasons, do not allow individuals to remain underneath the jib arm!

3.6 Safety Related Environmental Conditions

Operation of the DSLR Light-Jib is suitable under the following conditions:

Studio and limited outdoor use.

The assembly location should not be sandy, dusty, salty, or wet.

Operation in heavy rain, snowfall, and highly windy or gusty environments should be avoided!

The surface should be flat and stable, and have suitable properties for the total weight of the jib.

Always be aware that the pressures of the individual tripod legs on the floor increases many times when the DSLR Light-Jib is loaded.

Avoid assembling the DSLR Light-Jib on snow, sand, or ground that is muddy.

3.7 Possible Misapplications

The following uses are not permitted for the DSLR Light-Jib:

- The use of cameras with a weight over 4.5kg.
- The use of the jib without counterweights.
- The use of the DSLR Light-Jib for holding lighting systems.
- The use of the DSLR Light-Jib in sandy environments.
- The use underwater.
- Removing the camera before the counterweights are removed.



3.8 Residual Dangers and Protective Measures

Transport/Storage:

- When transporting the DSLR Light-Jib, ensure that the load does not rest on individual components
- The jib should be stored in a dry room
- The jib must not be stored in direct sunlight
- The jib should not be transported or shipped without appropriate packaging
- The jib must not be moved while under load. Weights should always be removed before relocation in accordance with the operating instructions
- All accessories must be disassembled before transporting



4. Technical Information

4.1 Technical Data

Packing Dimensions:	155 x 25 x 15cm
Dimensions (Assembled):	Lifting Height 2350cm Operating Range 155cm
Weight:	3.9kg + Accessories and Counterweights
Materials Used:	

Crane Tube:	Carbon
Crane Middle Section and Head:	Aluminum
Clamps, Various Small Pieces:	Plastic



4.2 Counterweight Table

Determining the necessary counterweight is accomplished with the following formula:

3 x Camera Weight + 3kg = Necessary Counterweight

Camera Weight	Counterweight
2kg	9kg
3kg	12kg
4kg	15kg



5. Assembly and Operation

5.1 Main Components

	Crane head with 1/4" mounting screws and 3/8" angle adjustment with set screw
	Guide handle with rotary clamp
	Crane middle section with swivel joint
	Monitor holder
	Horizontal brake
	Vertical brake
	Counterweight tube
Y	Counterweight clamp with mounting tube



	Handle end stop
R	75mm/100mm tripod adapter
	Carrying case
2	 Crane head quick pin Counterweight quick pin
1 2 2	1. 3/8" screws 2. ¹ /4" screws
	Counterweight tube clamp



5.2 Optional Accessories

	Item No. M1000 Set 12.5kg consisting of round, rubberized disk weights (1 x 5kg/2 x 2.5kg, 2 x 1.25kg) and carrying case
	Subject to technical change, items may differ from picture
1 MAT	Item No. M2592 DSLR-Adventure padded carrying case, heavy duty washable outer shell, backpack transport system, molded foam interior
	Subject to technical change, items may differ from picture
	Item No. M2594 7" TFT LCD7/HDMI Marshall 800x480 monitor incl. battery and charger
	Subject to technical change, items may differ from picture
A	Item No. 8321-0 32X tripod with 100mm ball socket
	Subject to technical change, items may differ from picture
	Item No. 8321-3000 Folding tripod roller
· ·	Subject to technical change, items may differ from picture



5.3 Assembly

Please open the shipping box carefully.

Do not use any sharp tools such as cutters, scissors, etc., which could lead to carrying case or jib damage.

Please check the delivery contents. For a list of delivery contents see page 4.

Inform the manufacturer in the event of any missing items.

5.3.1 Mounting the Tripod and Crane Support



- The tripod with jib may only be used on a stable, flat and slip-resistant surface. The load capacity of the floor, or more specifically that of the supporting structure, must be known and sufficiently rated. The jib must be assembled in such a way, that stability is continuously maintained during operation.
- The tripod must be capable of carrying the maximum load (jib weight, camera, counterweights, accessories such as a monitor, etc.!). Observe the technical information provided by the manufacturer! Individuals in the vicinity may be injured!
- Ensure that the tripod is always upright! Avoid tilted positions!
- Ensure that the tripod leg extension screws are always securely closed!



Image <mark>01</mark>

Pull the tripod out to the desired height, securely fasten, and level



Image 02

Adapter for tripod mounting is delivered fully assembled.

Suitable for ball sockets:

75mm and 100mm

Additional thread for tripod with 3/8" screw

When mounting the jib on a tripod with a 3/8" screw, the threaded bolt M10 A must be unscrewed!

DSLR Light-Jib Operating Instructions





Image 03

Mount the crane support onto the tripod. The **M10** axel pin is guided through the opening in the tripod socket. The support must be horizontal and centered in the socket. You may now securely fasten the support with the washer and star grip nut.



Image <mark>04</mark>

Slide spacer **A** onto the threaded bolt and screw on star grip nut **B**.



Image <mark>05</mark>

Hand tighten the star grip nut **B** until it stops!



Image <mark>06</mark>

The jib level can be inspected using the bubble level **A** on the crane support.



Not paying close attention during assembly may lead to being crushed between the middle section and the tripod!



5.3.2 Mounting the Camera

For mounting the camera a 1/4" screw and a 3/8" screw are included!



The maximum weight capacity for the DSLR Light-Jib is 4.5kg and must not be exceeded!

NOTICE For damage occurring as a result of overloading, no product liability is assumed, and the warranty will be void!

The closer the camera is mounted to the pivot point of the jib head (1), the lower the pivot acceleration will be for steep camera viewing angles.

When mounting, ensure that a long camera body does not come into contact with the top tube during steep pivoting angles.



Warning sign in accordance with ANSI (Z 535.3 - 2007)

Definitions: Crush - hazard for hands



In the spaces between the crane head exists a crushing hazard for fingers!

bruise / crush

Image 07



Set camera on jib head and fasten with

1/4" or 3/8" mounting screw, depending

on the threading of your camera.

Pivot Point (1) Jib Head



Image 08

For mounting with a 1/4" or 3/8" screw, a slotted screwdriver or other suitable tool is required. This tool is not included!

NOTICE Adjustment of the focal length on certain lenses can lead to a shift in weight distribution. Rebalance the counterweights accordingly by adjusting the counterweight tube.

(See chapter 5.3.5 Balancing the DSLR-Jib with Counterweights)



5.3.3 Mounting the Counterweight Sleeve



Image 09 Open the counterweight tube clamp screw (1)!



Image 10

Pull out counterweight tube approx. 40cm.

Securely close the clamp screw (1).



Image 11

Slide ribbed sleeve over the counterweight tube!

The hole (2) in the sleeve must be aligned with the hole in the counterweight tube!

For mounting the quick pin (1) is required!

Press the button in order to slide the quick pin through!



Image 12

Quick pin end position!

To remove, press the release button (1) again!

NOTICE

- Excessive internal diameter of the weights can result in bumpy tracking (swaying)!
- The outer diameter of the sleeve, onto which the counterweights are inserted, is 30mm!
- Ensure that the disk weights/counterweights are suitable for this diameter.

(Standard internal diameter of disk weights is 31mm)





5.3.4 Loading Counterweights



Image <mark>11</mark>

Slide on disk weights (1) to stop clamp (2)!

The clamp can be repositioned depending on the quantity!

Notes on the approx. amount of weight required depending on camera type may be found on the weight table page.

Image 12

Do not load too many weights since precise balancing occurs through the variable extension length of the counterweight tube!





Image 14 Move disk weights all the way back towards handle (1)! Squeeze clamp (2) and slide up against disk weights!



- When loading weights, there is a hazard of crushing extremities, fingers, skin, etc.
- When loading weights, ensure that the area below the weights remains clear. Feet can be injured by falling weights.
- Wear gloves when loading weights to avoid being crushed.

Observe all appropriate warning signs on the device:

DSLR Light-Jib Operating Instructions





Warning sign in accordance with ANSI (Z 535.3 - 2007)

Definitions: Crush – hazard for hands



In the spaces between the weights exists a crushing hazard for fingers!





Fall down / drop



Foot protection

2007) Definition: Fall down/downward movement Hazard for feet Ensure that during the loading of counterweights no weights fall on your feet! Hazard for feet! Warning sign in accordance with ANSI (Z 535.3-2007)

Warning sign in accordance with ANSI (Z535.3-

Definition: Foot protection/wear safety shoes and protect your feet

5.3.5 Balancing the DSLR Light-Jib

Precise balancing occurs through the extension of the counterweight tube! The longer the counterweight tube is extended, the greater the leverage will be, and the less counterweight will be required!

The shorter the counterweight tube is extended, the more counterweight will be required!



Image 15 Correct loading of the disk weights!



Image **16** Open the counterweight tube clamp screw (1)!

DSLR Light-Jib Operating Instructions





Image **17** Slide the counterweight tube until the jib is balanced (when the camera neither sinks nor rises!)



Image **18** Open the counterweight tube clamp screw (1)!



- The counterweight tube has an end marker (1), pull out the tube with the marker no further than to the edge of the clamp!
- Always ensure that the counterweight tube clamp screw is securely fastened!

NOTICE

- Horizontally balancing the jib is optimal!
- The counterweight tube has a stopper inside that prevents the shaft from sliding out! The stopper must not be forcefully removed!



5.3.6 Dismounting the Camera



- Remember, when dismounting the camera be sure to remove the counterweights first, and then the camera. Otherwise there is a risk of the jib arm shooting upwards uncontrollably.
- Be sure to inform any third persons responsible for dismounting the camera well in advance!

ATTENTION!

During Assembly:

ALWAYS mount the camera first, and then add the counterweights!

During Disassembly:

ALWAYS remove the counterweights first, and then the camera!

Never dismount the camera when counterweights are loaded!

- Never remove the end stop handle in diagonal position to the jib with counterweights!
- Weights are then unsecured and can slide off the counterweight tube!



5.3.7 Mounting the Monitor Holder (included)



The monitor holder is mounted to the crane support without tools, using the provided slot!



Image 22

Pull outwards on the latch ring!

Mount monitor holder and allow latch to snap into place!

The monitor holder is secured!

Mounting a Monitor (not included - optional accessory!)

For optimal image control a monitor is needed, for example a 7" TFT. The monitor holder has a $\frac{1}{4}$ " screw for the mounting of a monitor.



Image <mark>23</mark>

The monitor is attached to the monitor holder using 1/4" screw (1)! Using screws (2) the position can be changed to make the monitor vertical or alter the viewing angle.



- If the monitor holder is mounted at the front of the jib head, there is no mechanical protection!
- Ensure that the monitor holder is not accidentally leveraged from the mount!
- Electrical equipment must always be protected from moisture!

NOTICE Remember that when selecting a video cable, for example HDMI (not included), a minimum length of 2m is required!



5.4 Jib Head Angle Adjustment

The angle of the jib head can be adjusted using the circular elongated hole (1) and the clamp screw!



Image 27 The angle adjustment of the jib head allows for fine vertical adjustments of the image angle and extreme perspectives!

Downward angle adjustment of the jib head



Upward angle adjustment of the jib head



Image 27 Support jib head with second hand, open clamp screw (2) and adjust the angle downwards! Retighten clamp screw!

Image 28 Support jib head with second hand, open clamp screw (2) and adjust the angle upwards! Retighten clamp screw!



- In the spaces between the crane head exists a crushing hazard for fingers!
- When raising and lowering the head, inattentive operation may crush a user's fingers between the carbon tubes, brakes, and cross clamps



Support the crane head with your second hand when changing angles, in order to avoid having the crane head slip.





5.5 Jib Head Parallelogram Adjustment (Mechanical Angle Adjustment)



Image 31

Parallelogram adjustment for vertical tracking movements without angular shifts in the image! "The camera always points towards the horizon"

Open clamp screw (1)

Top tube (2) to bottom stop position! Tighten clamp screw (1)



Image 32

Ideal function for parallel object tracking

Image 33

Parallelogram adjustment for vertical tracking movements

with

Angular shifts in the image!

"The camera changes its viewing angle while pivoting"

Open clamp screw (1)

Top tube (2) to top stop position!



Image 34 Ideal function for fast perspective shifts!



NOTICE When using maximum parallelogram adjustment, vertical pivot range is limited due to construction.



5.6 Horizontal and Vertical Brakes

Horizontal Brakes



Image 36 The horizontal brake:

(A) Open brake position

Press the brake handle forward to close the brake

(B) Brake is in closed position

Vertical Brakes



Image 37 The vertical brake:

(1) Open clamp screw

The jib can now be moved freely

(1) Tighten clamp screw – the jib is vertically locked

NOTICE

- Observe that the horizontal brake does not completely secure the horizontal axis, but merely brakes it
- Please be sure to sufficiently release the brakes before pivoting in order to ensure smooth movement and avoid damage to the brake!
- The mechanical brake is not intended to function as friction damping

5.7 Adjusting the Handle



The DSLR Light-Jib is equipped with a handle, which can positioned flexibly.

By turning the handle counterclockwise the clamp is opened.

Position the handle and then secure by turning clockwise.





5.8 List of Recognized Hazards Identified as Non-Relevant

Hazard consequence: Scissors (mechanical hazards) Hazard consequence: cutting (mechanical hazards) Hazard consequence: detecting (mechanical hazards) Hazard consequence: drawing, tracing (mechanical hazards) Hazard consequence: puncture, puncture (mechanical hazards) Hazard consequence: rubbing, abrasion (mechanical hazards) Hazard consequence: penetration of pressurized fluids (mechanical hazards) Hazard consequence: asphyxia (mechanical hazards) Hazard consequence: slips, trips, falls (mechanical hazards) Hazard consequence: Burn (electrical hazards) Hazard consequence: chemical reaction (electrical hazards) Hazard consequence: fatal electrical shock (electrical hazards) Hazard consequence falls be thrown, (electrical hazards) Hazard consequence: fire (electrical hazards) Hazard consequence ejected molten parts (electrical hazards) Hazard consequence: (electric) shock (electrical hazards) Hazard consequence: impact on medical implants (electrical hazards) Hazard consequence: internal combustion (thermal hazards) Hazard consequence: Scald (thermal hazards) Hazard consequence: dehvdration (thermal hazards) Hazard consequence: discomfort (thermal hazards) Hazard consequence: Frostbite (thermal hazards) Hazard consequence of injury by radiation from heat sources (thermal hazards) Hazard consequence: discomfort (noise hazards) Hazard consequence: loss of consciousness (noise hazards) Hazard consequence: vertigo (noise hazards) Hazard consequence: permanent hearing loss (noise hazards) Hazard consequence: tinnitus (ringing in the ears) (noise hazards) Hazard consequence: stress (noise hazards) Hazard consequence: All other (eg mechanical, electrical) problems due to a disturbance of the voice communication (noise hazards) Hazard consequence: fatigue (noise hazards) Hazard consequence: diseases of the lower spine (vibration hazards) Hazard consequence: bone joint damage (vibration hazards) Hazard consequence: spinal cord injury (vibration hazards) Hazard consequence: discomfort (vibration hazards) Hazard consequence: vascular disease (vibration hazards) Hazard consequence: neurological disease (vibration hazards) Hazard consequence: Burn (radiation hazards) Hazard consequence: impact on reproductive health (radiation hazards) Hazard consequence: genetic modification (radiation hazards) Hazard consequence: headache, insomnia, etc. (radiation hazards) Hazard consequence: Eye and skin injury (radiation hazards) Hazard consequence: respiratory distress, asphyxia (material and substance hazards) Hazard consequence: Cancer (material and substance hazards) Hazard consequence: corrosion (material and substance hazards) Hazard consequence: impact on reproductive function (material and substance hazards) Hazard consequence: changes in the genome (material and substance hazards) Hazard consequence: Explosion (material and substance hazards) Hazard consequence: fire (material and substance hazards) Hazard consequence: infection (material and substance hazards) Hazard consequence: awareness (material and substance hazards) Hazard consequence of poisoning (material and substance hazards) Hazard consequence: discomfort (ergonomic hazards) Hazard consequence: fatique (ergonomic hazards) Hazard consequence: disorder of the musculoskeletal (ergonomic hazards) Hazard consequence: stress (ergonomic hazards) Hazard consequence: All other (eg mechanical, electrical) problems as a result human error (ergonomic hazards) Hazard consequence: combustion (hazards in relation to the operational environment of the machine) Hazard consequence: Slight disease (hazards in relation to the operational environment of the machine) Hazard consequence: slips, falls (hazards in relation to the operational environment of the machine) Hazard consequence: All other due to the effects of the risk sources on the machine or part of the machine problems (risks related to the operational environment of the machine) Hazard consequence: asphyxia (hazards in relation to the operational environment of the machine) Hazard consequence: fuels / flammable substances (risk of fire or explosion) Hazard consequence: Explosive atmosphere (the risk of fire or explosion)



Hazard consequence: electrical sources of ignition (risk of fire or explosion) Hazard consequence: mechanical sources of ignition (risk of fire or explosion) Hazard consequence: other sources of ignition (risk of fire or explosion) Hazard consequence: failure / malfunction of the control system (Unexpected start, unexpected spin) Hazard consequence: the restoration of power supply (Unexpected start, unexpected spin) Hazard consequence: External influences on the electrical equipment (Unexpected start, unexpected spin) Hazard consequence: Other influences such as gravity, wind, etc. (An unexpected start, unexpected spin) Hazard consequence: Software error (Unexpected start, unexpected spin) Hazard consequence: Operator error (Unexpected start, unexpected spin) Hazard consequence: stop, emergency stop Hazard consequence from changes in rotational speed Hazard consequence: lack of energy supply Hazard consequence: loss of control or the control loop Hazard consequence: Faulty installation Hazard consequence: the breaking operation Hazard consequence thrown objects or liquids

Hazard consequence: loss of stability

Hazard consequence: slipping, tripping or falling of persons

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