International Hazard Datasheets on Occupation

Crane Operator (Construction work)

What is a Hazard Datasheet on Occupation?

This datasheet is one of the International Datasheets on Occupations. It is intended for those professionally concerned with health and safety at work: occupational physicians and nurses, safety engineers, hygienists, education and Information specialists, inspectors, employers ' representatives, workers' representatives, safety officers and other competent persons.

This datasheet lists, in a standard format, different hazards to which crane operators (construction work) may be exposed in the course of their normal work. This datasheet is a source of information rather than advice. With the knowledge of what causes injuries and diseases, is easier to design and implement suitable measures towards prevention.

This datasheet consists of four pages:

- Page 1: Information on the most relevant hazards related to the occupation.
- Page 2: A more detailed and systematized presentation on the **different hazards** related to the job with indicators for preventive measures (marked as and explained on the third page).
- Page 3: Suggestions for **preventive measures** for selected hazards.
- Page 4: **Specialized information**, relevant primarily to occupational safety and health professionals and including information such as a brief job description, a list of tasks, notes and references.

Who is a crane operator?

A qualified and licensed worker who operates, inspects, and positions cranes in construction sites, log yards, railways and industries

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What is dangerous about this job?

- Crane operators may fall from heights, suffer electric shocks, and get injured by blows from falling objects or moving elements of the crane. Work in harsh weather or strong sunlight may cause health problems.

Hazards related to this job

Specific preventive measures can be seen by clicking on the respective in the third column of the table.

Accident hazards	• Falls from heights, esp. when carrying out inspection work or working from suspended platforms	1 2 3
	• Slips, trips and falls (esp. while carrying heavy or bulky loads, or on wet ground)	4
	• Falls of loads on head, feet or other parts of body	5
	• Blows to or crushing of head or other parts of the body by swiveling loads or crane parts, or by the counterweight, as a result of operator error or misunderstanding of signals	5
	• Injuries to whole body or body parts as a result of tipping or collapse of the crane or parts thereof (in particular when trying to hoist loads greater than the rated load, or at angles or operating radii outside the approved ones	
	• Entanglement of clothing, hair, beards, hands or feet in moving parts of machinery, belts, ropes, chains, etc.	5
	• Entrapment or crushing between moving or rotating structures	6
	• Cuts and injuries caused by sharp instruments and tools during maintenance work	
	• Electric shock or electrocution, caused by defective installations and equipment, or by contact	

	of metal booms of the crane, or chains, with power lines	7
	• Muscolo-skeletal injury (esp. of back), resulting from lifting and moving of heavy loads	8
	• Burns dues to contact with hot exhaust pipes or exhaust gases	
	• Fires caused by heating equipment, smoking, or sparks from faulty electric equipment	
	• Lightning strikes during a storm	
	• Road accidents during the moving of mobile cranes	
Physical hazards	• Crane operators on building and construction sites work in all conditions, including extreme conditions of cold and/or heat	9
	• Exposure to strong sunlight	
	• Exposure to noise and vibrations from the engine (electric, diesel, gasoline or other)	
Chemical hazards	• Dermatitis as a result of exposure to lubricating oils during maintenance work	
	• Exposure to oxygen-deficient atmospheres (e.g., from accumulation of exhaust gases)	
Biological hazards	• Bites by snakes, rodents and insects in construction sites	
Ergonomic, psychosocial and organizational factors	• Repetitive strain injury (RSI) and other Musculo-skeletal problems, as a result of continuous repetitive movements	8
	• Overexertion during lifting and moving of heavy loads	8
	• Back problems and leg fatigue if sitting in an improperly designed chair	
	• Fatigue and Musculo-skeletal problems caused by vibrations	
	• Crane operators work irregular hours and may also work at night and at weekends	
	• Stresses and family problems due to shiftwork	

Preventive measures

1. Install a grab rail round the perimeter of all surfaces on which personnel may have to stand
2. Do not use a crane to hoist workers on a suspended platform
3. Use adequate fall restraining equipment (harnesses, lanyards, etc.) when working on heights. Inspect ladders before climbing. Never climb on a shaky ladder or a ladder with broken or slippery rungs
4. Wear shoes with slip free soles
5. All persons in the vicinity of cranes in construction work must wear hard hats, safety shoes and other PPE as appropriate to minimize the effect of blows by falling or moving objects
6. Allow adequate clearance between moving or rotating elements of the crane and fixed structures to prevent crushing or entrapment

7. Check electrical equipment for safety before use. Call a qualified electricity technician for testing and repair of faulty or suspect equipment

8. Learn and use safe lifting and moving techniques for heavy or awkward loads

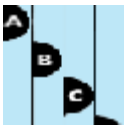
9. Wear adequate clothing and head-gear for skin and head protection in adverse weather

Specialized information

Synonyms

Crane driver; crane man; gantry-crane operator; locomotive crane operator; mobile crane operator; mobile crane driver; monorail crane operator; overhead crane operator; tower crane operator; truck crane operator

Definitions and/or description



A term applied to workers who operate cranes to hoist, move, and place materials and objects, using attachments, such as sling, electromagnet, grapple hook, bucket, demolition ball, and clamshell. Classifications are made according to type of crane operated as OVERHEAD CRANE OPERATOR; LOCOMOTIVE-CRANE OPERATOR; MONORAIL CRANE OPERATOR; TRUCK CRANE OPERATOR. [DOT] Crane operators work at heights and in most weather conditions except high winds. They operate mobile or stationary cranes to lift, move and place objects at locations such as construction sites, wharves and shipyards. Crane operators may operate a variety of cranes such as: gantry cranes, which are used to move shipping containers; tower cranes, which are erected and dismantled on site; overhead cranes in factories, workshops and timber mills; and mobile cranes, which may be truck mounted. Frequently, cranes are used for lifting and moving parts of buildings such as roofs, and materials and people on building construction sites. [Internet]

Related and specific occupations

A-frame derrick operator; basket derrick operator; breast derrick operator; Chicago boom derrick operator; crane-crew supervisor; crane engineer; crane follower; crane hooker; crane rigger; derrick barge operator; dredge operator/mate; earthmoving machine operator; fork-lift driver; gin-pole operator; guy-derrick operator; log-yard derrick operator; offshore-platform derrick-operator; oilfield (and oil exploration) derrick operator; railway-engine driver; scaffolder; stiff-leg derrick operator; tow-truck driver; truck-mounted derrick operator; well-service derrick worker; waterside worker;

Tasks

Arranging; attaching; carrying; checking (ground condition and that crane is level on the outriggers before attempting to lift and place a load; air, water and fuel gauges); cleaning; climbing; connecting; controlling; converting; depressing (pedals); driving (to work sites); ensuring (the setting and securing of the crane); following (directions of signal men); inserting; inspecting; lifting; loading and unloading; locating; lowering; lubricating (cables, pulleys, etc.); maintaining; moving (loads); observing; operating; placing (the correct equipment under the outrigger pads of the crane); planning; positioning; pulling and pushing; raising; repairing; replacing; rotating; securing (see Note); stacking; starting; supplying; transferring; verifying (correctness of load)

Primary equipment used

Derricks; hand tools for maintenance and lubrication; miscellaneous auxiliary equipment such as: chains, ropes, hooks, etc.; mobile cranes; radios; radio telephones; signaling equipment; tools for repair; tower cranes

Workplaces where the occupation is common

Building and construction companies; construction sites; derrick barges (in river transport); docks manufacturing and engineering firms; iron and steel foundries; oil fields; offshore oil drilling; timber yards; transportation industry in general (road, rail and waterway transport; wharves

Notes

1. Crane operators should be able to communicate well with members of construction site teams in order to understand what is required when moving loads from one place to another. They should be able to follow instructions from clients, and must be able to give and interpret hand signals correctly when operating a crane. They should be skilled at observing details on the ground and they are also required to have first aid skills.

2. Crane operators must know about the safety regulations that govern crane operation, the weight limits for various cranes and how to maintain the cranes they use. They should also have some knowledge of construction methods and materials.

3. Crane operators must be careful and attentive so they can follow directions closely, and they may also be up in cranes for long periods of time. They need to be cautious with heights. They should be able to work well in construction teams and should be responsible at all times when operating a crane. They should also be versatile and have a co-operative attitude as they may be asked to do other jobs on construction sites when they are not operating cranes.

4. Crane operator must be aware as to how much material can be safely hoisted in each load according to the crane's capacity and the weather conditions, e.g. high winds; ensure that cranes are ready to use by checking controls, instruments, and gauges;

5. Crane operators should be reasonably fit and healthy; have good eyesight and good hand-eye co-ordination. In some

countries (e.g. Israel) every crane operator should see the site manager before he begins work.

6. "Placing" - means to place the correct equipment under the outrigger pads of the crane (normally these are timber blocks but, they can be steel plates depending upon the condition of the site);

---- "moving" - means moving the crane and positioning the hook so that Dockers can attach loads, slings, shackles and chain;

---- "checking" - means that crane cabin instruments must be checked to ensure that loads hooked on their machines are within safe working limits; the signals given by Dockers who direct the moving and positioning of the loads should be observed and followed; and cranes are maintained by inspecting them for defects or wear, lubrication of ropes and replacement of worn cables

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References

California Code of Regulations. Subchapter 7 Article 95 - Derricks; Derrick signals; (1999)

OSHA Regulations Standards - 29 CFR. Derricks - 1910.181 15 pp. With figures (1999)

OSHA Regulations Standards - 29 CFR. Cranes and derricks - 1926.550. 16 pp. (1999)

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