

BS 7121-3:2017+A1:2019



BSI Standards Publication

Code of practice for safe use of cranes

Part 3: Mobile cranes

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Summary of pages

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Foreword

Publishing information

This part of BS 7121 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 June 2017. It was prepared by Subcommittee MHE/3/11, *Crane safety and testing*, under the authority of Technical Committee MHE/3, *Cranes and derricks*. A list of organizations represented on these committees can be obtained on request to their secretary.

Supersession

BS 7121-3:2017 superseded [BS 7121-3:2000](#), which has been withdrawn.

BS 7121-3:2017+A1:2019 supersedes BS 7121-3:2017, which is withdrawn.

Relationship with other publications

[BS 7121-1](#) provides general recommendations for all types of cranes. BS 7121-2 (all parts) covers in-service inspection, maintenance, thorough examination and testing for the safe use of all types of crane. BS 7121-3 provides recommendations for mobile cranes. Other parts of BS 7121 deal with the specific crane types as follows:

- Part 4: Lorry loaders;
- Part 5: Tower cranes;
- Part 11: Offshore cranes;
- Part 12: Recovery vehicles and equipment;
- Part 13: Hydraulic gantry lifting systems;
- Part 14: Side boom pipelayers.

BS 7121 has been accepted as representing the consensus of practical experience for safety on cranes.

Information about this document

Text introduced or altered by Amendment No. 1 is indicated in the text by tags A1 A1. Minor editorial changes are not tagged.

This part of BS 7121 was revised to reflect [BS 7121-1:2016](#).

Use of this document

As a code of practice, this part of BS 7121 takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this part of BS 7121 is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the preparation of this part of BS 7121 that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

In particular, attention is drawn to the following statutory regulations:

- The Health and Safety at Work etc. Act 1974 [1];
- The Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2];
- The Provision and Use of Work Equipment Regulations (PUWER) 1998 [3];
- The Supply of Machinery (Safety) Regulations 2008 (as amended) [4];
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) [5];
- The Road Traffic Act 1991 [6];
- The Road Vehicles (Construction and Use) Regulations 1986 (as amended) [7];
- The Road Vehicles (Authorisation of Special Types) (General) Order 2003 [8];
- The Vehicle Excise and Registration Act 1994 [9].

NOTE Details of the Lifting Operations and Lifting Equipment Regulations 1998 [2] and the Provision and Use of Work Equipment Regulations 1998 [3], together with an HSE Approved Code of Practice and HSE Guidance, are given in HSE publications Safe use of lifting equipment [N2] and Safe use of work equipment [10].

1 Scope

This part of BS 7121 provides recommendations for the safe use of mobile cranes (see 3.5) used for a wide variety of lifting operations in numerous locations, and is intended to be used in conjunction with BS 7121-1, which gives general recommendations for all types of cranes, and BS 7121-2 (all parts), which gives general guidance on inspection, testing and examination of all types of cranes.

NOTE Mobile cranes are manufactured in many different forms. Mobility is either by means of wheels or crawler tracks. Cranes can be fully mobile and able to travel with rated capacity loads suspended (pick and carry), or semi-mobile and not permitted to travel with suspended loads. Semi-mobile cranes include wheeled and crawler-mounted cranes, fitted with stabilizers or outriggers; and cranes that, due to size and weight, are taken to the work site in parts and assembled at the site. Cranes that are assembled on site to work from a fixed base with outriggers are also covered by this part of BS 7121.

This part of BS 7121 is not applicable to rail-mounted cranes, cruciform self-erecting tower cranes, cranes covered by other parts of BS 7121, or to the use of cranes:

- a) for bungee jumping or similar entertainment activities; or
- b) specifically designed for railway applications; or
- c) as part of a fully automated storage or production system.

While the recommendations in BS 7121-1 are for planning, management, selection of equipment and personnel, etc., for safe lifting with all types of cranes, this part provides specific recommendations for safety when dealing with the hazards caused by mobility and the diversity of locations for mobile crane lifting operations.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 7121-1:2016](#), *Code of practice for safe use of cranes — Part 1: General*

BS 7121-2 (all parts), *Code of practice for safe use of cranes — Part 2: Inspection, testing and examination*

[BS 7121-2-1:2012](#), *Code of practice for the safe use of cranes — Part 2-1: Inspection, maintenance and thorough examination — General*

[BS 7121-2-3:2012](#), *Code of practice for the safe use of cranes — Part 2-3: Inspection, maintenance and thorough examination — Mobile cranes*

[BS 7671](#), *Requirements for electrical installations — IET Wiring Regulations*

[BS EN 14502-1](#), *Cranes — Equipment for the lifting of persons — Part 1: Suspended baskets*

[N1] HEALTH AND SAFETY EXECUTIVE (HSE). *Guidance Note GS6, Avoiding danger from overhead power lines*, Sudbury, HSE Books, 2013.

[N2] HEALTH AND SAFETY EXECUTIVE (HSE). *Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance L113*, Second edition, Sudbury, HSE Books, 2014.

[N3] HEALTH AND SAFETY EXECUTIVE (HSE). *Guidance Note HSG 118, Electrical safety in arc welding*, Sudbury, HSE Books, 1994.

3 Terms and definitions

For the purposes of this part of BS 7121, the terms and definitions given in [BS 7121-1](#) and the following apply.

3.1 familiarization

process of ensuring that a trained operator is familiar with the characteristics of the MCWP they are required to operate where those characteristics differ from machines on which they have been trained

3.2 fly jib

additional jib fitted to the main boom tip to extend or offset the reach

NOTE 1 The main purpose of the fly jib is to increase the overall length of the main jib and to thereby increase the effective height of the lift. The fly jib can be set in the same line as the axis of the main jib, or can be offset at a fixed angle. If the fly jib is offset at an angle, the crane can be used to reach in over a structure (effectively increasing the radius). The greater the angle of offset, the higher the structure that can be negotiated and/or the further the crane can reach in to lift the load; but because of the increased stresses induced at the fly jib attachment point, only a reduced load can be lifted. A fly jib can be extended by insertion of intermediate lattice sections, but usually it is of shorter length than the main jib.

NOTE 2 Fly jibs can be of telescopic box construction but, because of a relatively high self-weight that can reduce their lifting capacity considerably, these are of limited application only.

3.3 free-on-wheels

ability to lift loads with a stationary, wheeled crane without the use of outriggers or stabilizers

3.4 load-enhancing equipment

equipment fitted to a mobile crane to increase the margin of stability or to reduce the structural stress within the loaded members, allowing the rated capacities for the crane configuration to be increased

NOTE Load-enhancing equipment may be known by a proprietary name (e.g. "Superlift"¹).

3.5 mobile crane

self-powered crane with a boom, which may be fitted on a mast (tower) and capable of travelling laden or unladen, without the need for fixed runways and which relies on gravity for stability, the chassis of the crane not having any capability to carry goods

NOTE 1 Mobile cranes can operate on tyres, crawlers or with other mobile arrangements. In fixed positions, they can be supported by outriggers or other accessories increasing their stability.

NOTE 2 The superstructure of mobile cranes can be of the type of full circle slewing, of limited slewing or non-slewing. It is normally equipped with one or more hoists and/or hydraulic cylinders for lifting and lowering the boom and the load.

NOTE 3 Mobile cranes can be equipped with telescoped booms (pinned), telescopic booms, articulated booms, or lattice booms – or a combination of these – of such a design that they can readily be lowered.

NOTE 4 Loads can be handled by hook block assemblies or other load-lifting attachments for special services.

[SOURCE: BS EN 13000:2010+A1:2014, 3.18, modified]

¹ Superlift is a trade mark owned by Terex South Dakota, Inc., 500 Oakwood Road, Watertown, USA, 57201, and is the trade name of a product supplied by Terex. This information is given for the convenience of users of this standard and does not constitute an endorsement by BSI of the product named. Equivalent products may be used if they can be shown to lead to the same results.

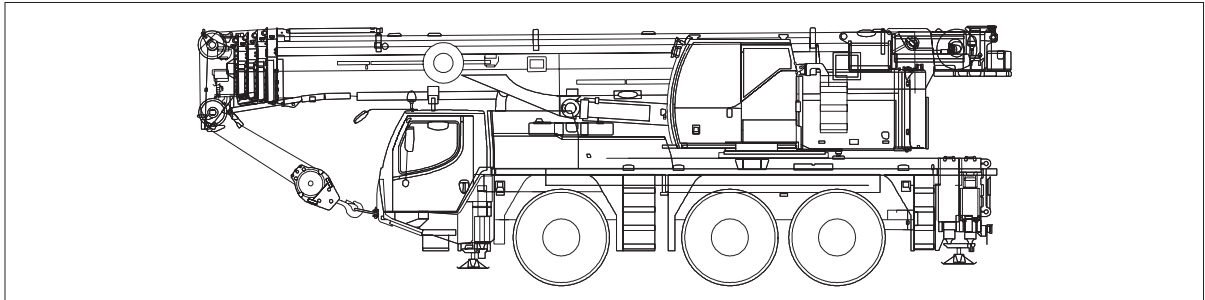
3.6 mobile crane types

3.6.1 all-terrain crane

telescopic jib, wheeled crane with a specially-designed chassis that allows travel on the highway at normal road speeds, and incorporates features, such as additional steering and driven axles, to give it better manoeuvrability on site

NOTE The term “all-terrain” does not mean that the crane can travel over rough, uncompacted ground.
See [Figure 1](#).

Figure 1 — All-terrain crane



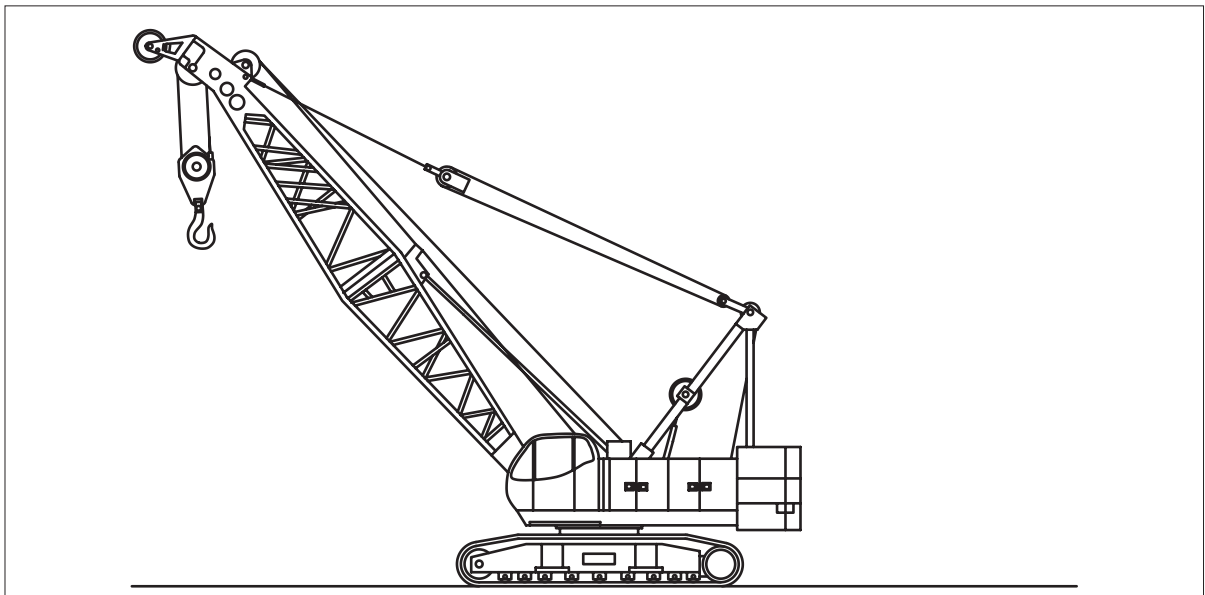
3.6.2 crawler crane

mobile crane mounted on crawler tracks, comprising a fully rotating crane superstructure connected, through a slewing ring or race, to a track-laying undercarriage

NOTE 1 The crane hoist system may have one, two or three rope drums. These can be operated by mechanical, friction clutch gear drives and friction foot brakes, although modern units are more likely to be driven and braked by hydraulic motors. See [Figure 2](#).

NOTE 2 Crawler cranes were developed from the rope-operated dragline excavator.

Figure 2 — Crawler crane



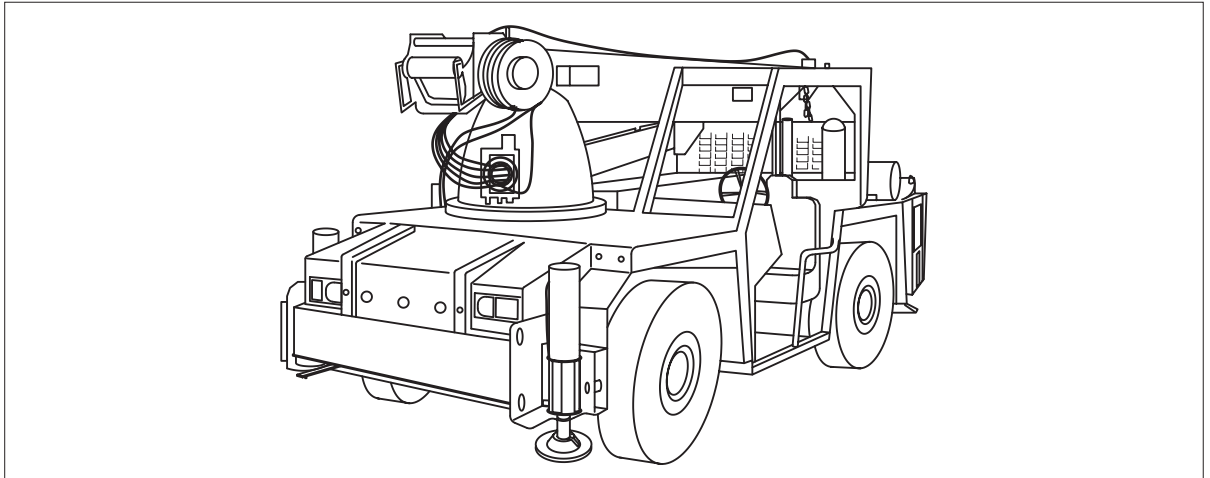
3.6.3 low-headroom crane

crane designed to lift and carry loads in locations where there is an overhead clearance restriction, e.g. on a factory floor

NOTE Low-headroom cranes have two axles (usually one to drive and one to steer, although in special applications both axles can drive). A single engine provides power for travel and crane motions. The jib is of

cantilever, telescopic construction, but there can be the option of extensions (e.g. a fly jib). Travel speed is lower than for small all-terrain cranes. See [Figure 3](#).

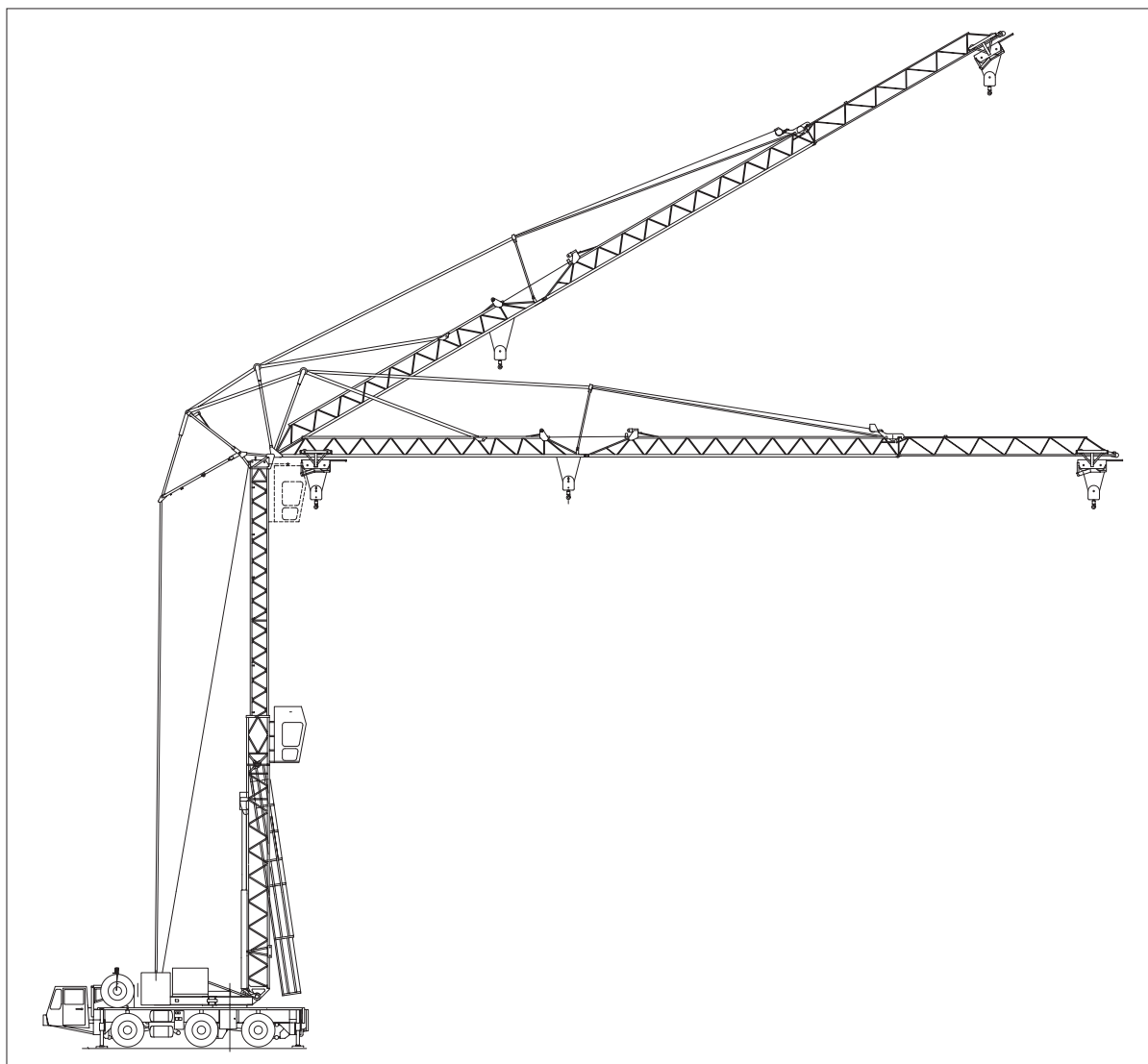
Figure 3 — *Low-headroom crane*



3.6.4 mobile self-erecting tower crane

self-erecting tower crane mounted on a self-propelled chassis

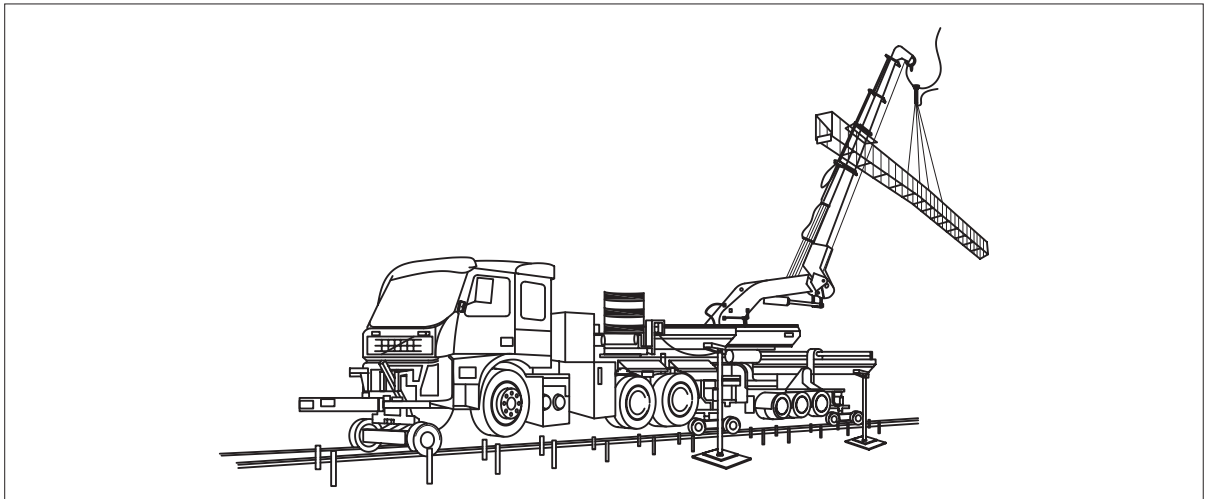
NOTE See [Figure 4](#).

Figure 4 — *Mobile self-erecting tower crane*

3.6.5 road-rail crane

wheeled or crawler crane fitted with rail gear allowing the crane to travel to a location, move on to the rail track, deploy the rail wheels and travel along the rail track guided by the rail wheels

NOTE See [Annex A](#) for more information on road-rail cranes. See [Figure 5](#).

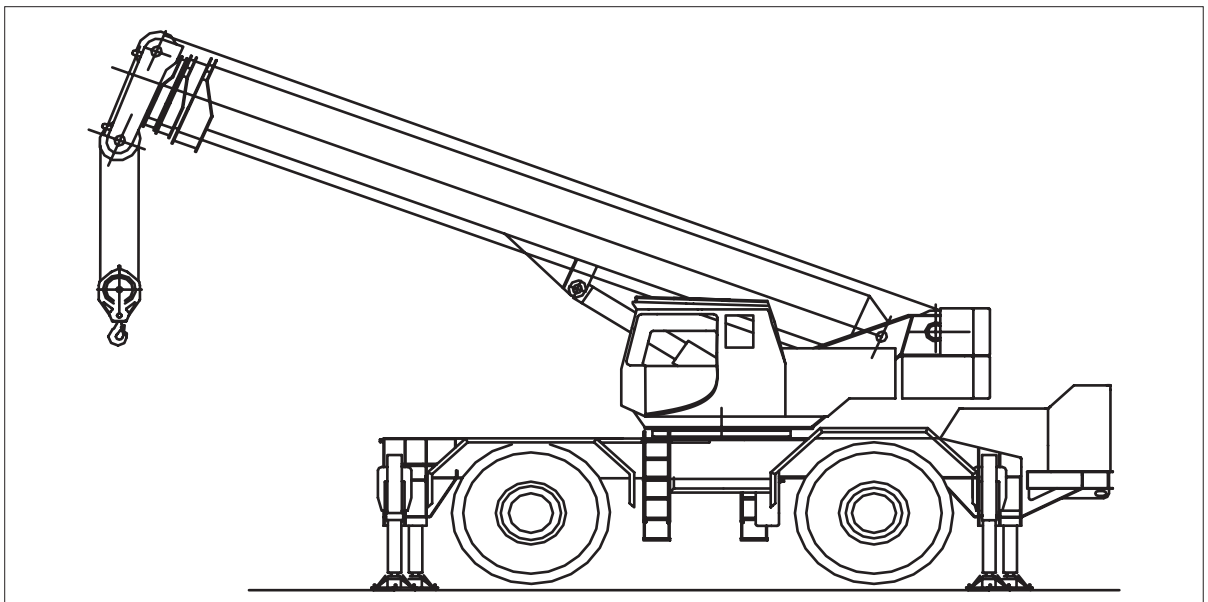
Figure 5 — Road-rail crane

3.6.6 rough-terrain crane

telescopic jib, wheeled-mounted crane, intended for use on a site where a number of loads are lifted at different locations and able to quickly move loads between the lift locations on site, and not intended for travel on the road/highways

NOTE 1 The manufacturer's manual ought to specify the conditions that apply to free-on wheels and pick-and-carry operations.

NOTE 2 See [Figure 6](#). "Rough-terrain" does not mean that this type of crane can travel over, and lift loads on, uneven ground with poor load-bearing ability. Rough-terrain cranes require the same ground conditions as other wheeled vehicles (i.e. ground firm enough for good traction without excessive sinking).

Figure 6 — Rough-terrain crane

3.6.7 semi-mobile crane

mobile crane which can travel to the position from which a lift is to be carried out and is then fitted with additional equipment to enhance its lifting capacity

NOTE 1 Once fitted with the additional equipment the crane is generally not be able to travel.

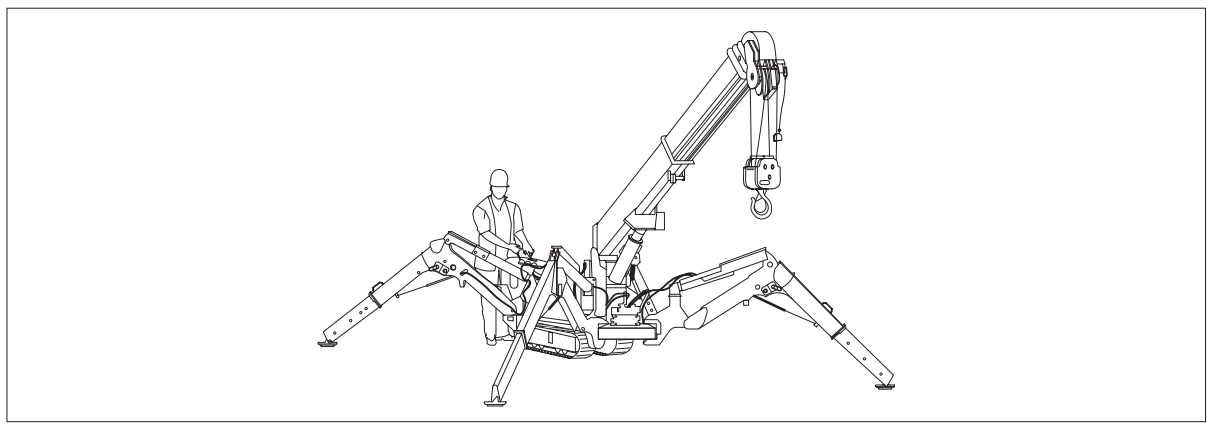
NOTE 2 An example of a semi-mobile crane is a crawler crane fitted with a Ringer² system.

3.6.8 spider crane (mini crawler/crane)

compact crawler type crane for use on congested construction sites, commonly between floors on multi-storey buildings or where access is a problem for conventional lifting machines

NOTE See Figure 7. Additional equipment for use with mini cranes, such as fly-jibs, searcher hooks and a robotic glazing vacuum head, add to their functionality.

Figure 7 — Spider crane

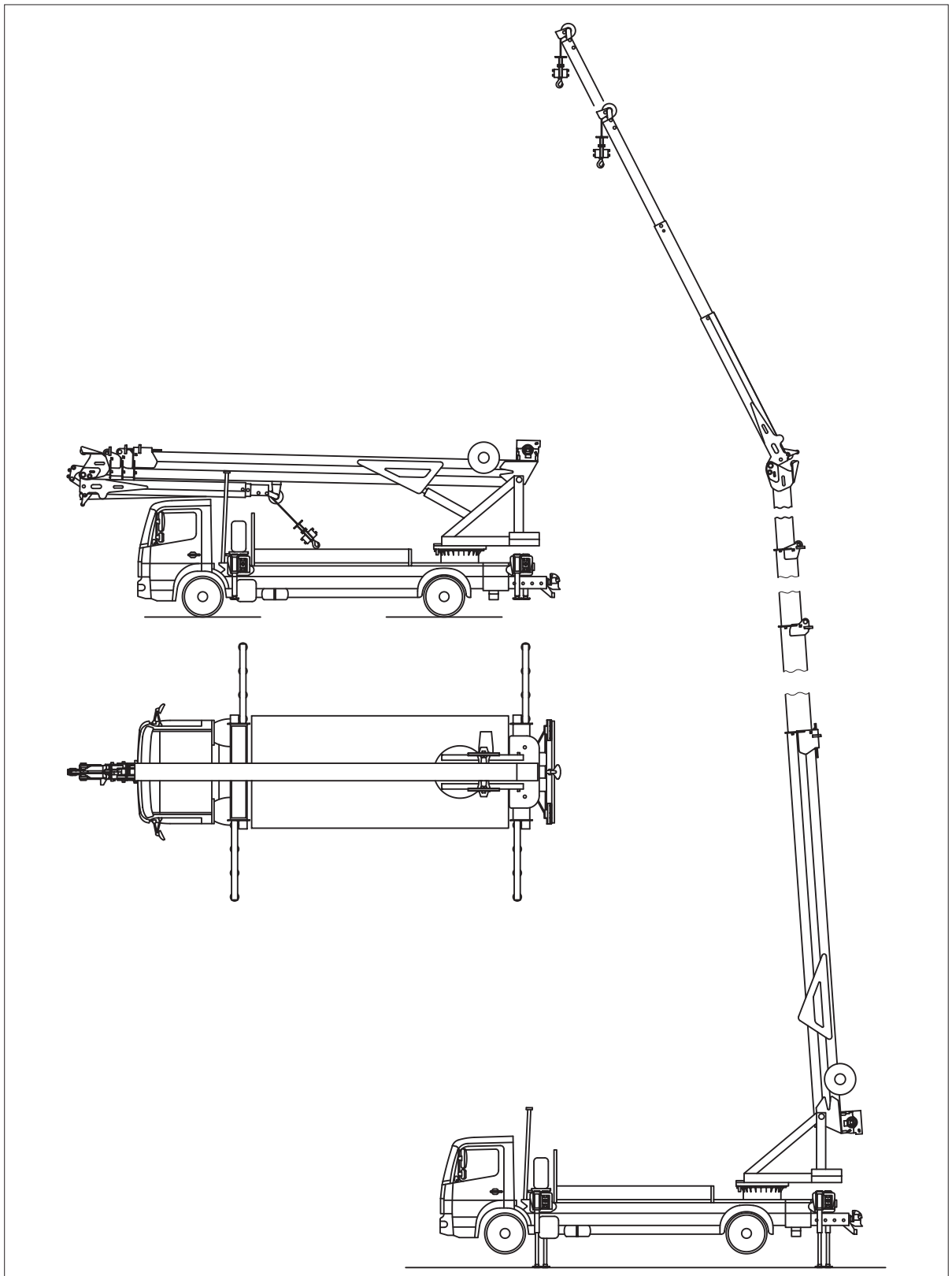


3.6.9 truck-mounted crane

crane unit mounted on a road truck chassis that is able to travel on public highways at normal road speeds

NOTE The chassis can be of an ordinary commercial truck that has been adapted, or it might have been specially manufactured to carry the superstructure unit. In either case the chassis is fitted with a set of outriggers or stabilizers to provide improved stability when lifting loads (see Figure 8).

² Ringer is a trade mark owned by The Manitowoc Company, Inc., 2400 South 44th Street, Manitowoc, Wisconsin, USA, and is the trade name of a product supplied by Manitowoc Cranes. This information is given for the convenience of users of this standard and does not constitute an endorsement by BSI of the product named. Equivalent products may be used if they can be shown to lead to the same results.

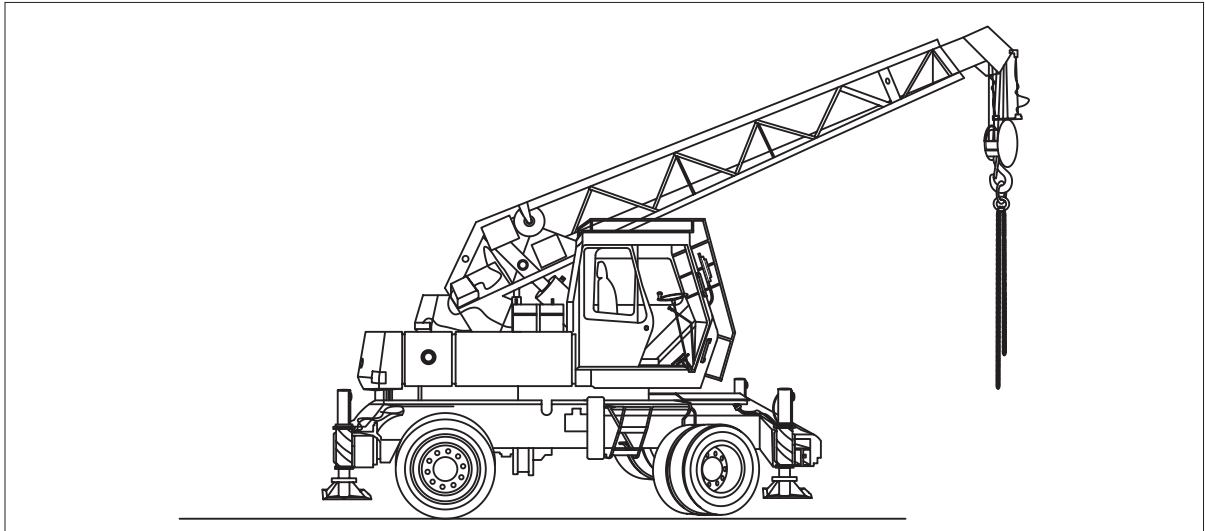
Figure 8 — *Truck-mounted crane*

3.6.10 yard crane

wheeled crane designed for working within a work site or factory where there is a known range of loads to be lifted

NOTE See [Figure 9](#). The crane chassis is short and usually fitted with two axles (one to steer and one driven). Power for travel is provided by the crane engine. Speed of travel is usually around walking pace.

Figure 9 — Yard crane



3.7 pick-and-carry

lifting operation that involves travelling with rated capacity loads suspended

3.8 slew limiter/restricter

device to prevent slewing beyond specified limits

3.9 variable base outriggers

outriggers that allow the crane to operate at a rated capacity which is proportionate to the extent of outrigger deployment at locations where space is limited

4 Management of installation and lifting operations

4.1 Safe system of work

4.1.1 A safe system of work should be established and followed for every crane installation operation or lifting operation, whether it is an individual lift or a group of repetitive operations.

4.1.2 The safe system of work should include:

- a) planning of the lifting operation, including preparation of the lift plan (see [Clause 5](#));
- b) selection, provision and use of a suitable crane(s) and work equipment;
- c) any necessary preparation of a site for the lifting operation, including any entry or exit travel routes for the crane(s);
- d) any rigging, de-rigging or setting up of the crane(s), e.g. manual boom extensions, stabilizers, outriggers and counterweight;
- e) inspection, maintenance, thorough examination and, where necessary, testing of the crane(s) and equipment and ensuring reports are available;

- f) the provision of properly trained and competent personnel who have been made aware of their responsibilities under the Health and Safety at Work etc. Act 1974 [\[1\]](#);
- g) adequate supervision by properly trained and competent personnel having the necessary authority;
- h) preventing unauthorized movement or use at all times;
- i) coordination of crane movements to avoid collisions between cranes and other items of plant or structures;
- j) the safety of persons not involved in the installation or lifting operation; and
- k) the need for the operator, unless in imminent danger, to remain in control of the crane throughout the lifting operation.

4.1.3 The safe system of work should be communicated effectively to all parties concerned.

NOTE It is essential for the safety of the operation to ensure that all personnel involved can communicate clearly in the same language.

4.2 Control of the lifting operation

4.2.1 General

4.2.1.1 In order to implement the safe system of work effectively, one person should be appointed to have overall control of the lifting operation to act on behalf of the management of the employing organization. The appointment of this person does not remove any legal responsibility from the management but enables them to use the appointed person's expertise. The person appointed may have other duties and need not be an employee of the employing organization. The appointed person should have adequate training and experience to enable them to carry out their duties (see [4.3.1](#)) competently.

NOTE The appointed person has a duty to ensure that the crane selected has adequate capacity for the intended use. The crane user has a duty to ensure that all lifts are carried out in accordance with the lift plan.

4.2.1.2 On large construction sites where multiple lifting operations are carried out by various subcontractors, the principal contractor should appoint the appointed person for the site. Each of the subcontractors on site may employ individuals who have undergone appointed person training, but they should remain subservient to the principal contractor's appointed person. The principal contractor's appointed person should ensure that the crane coordinator is advised of all lifting operations, to allow them to perform their duties.

4.2.2 Selection of appointed person

4.2.2.1 When selecting and assessing an appointed person, the employing organization should take into account the variety and complexity of the operation, as well as all the problems that could arise from proximity hazards and environmental causes. The appointed person should be notified formally in writing of their appointment.

NOTE To assist in the selection of an appointed person, some examples of lifting operations that require different levels of expertise, training and experience, and that impose different duties on the appointed person, are given in [4.3](#).

4.2.2.2 An appointed person should be trained in accordance with [BS 7121-1:2016](#), Annex A.

4.2.2.3 The employing organization should review the performance of the appointed person at planned intervals.

NOTE The duties of an appointed person for crane operations can vary according to the complexity of the operation. The duties for a basic lift are considerably fewer and less demanding than for a complex lift. An

appointed person employed for a basic lift might not be competent to carry out a more complicated operation, and another appointment could be required for this. 4.3.2 can be used to make an appropriate appointment and produce a suitable lift plan for each lifting operation.

4.3 Duties of the person appointed to control the lifting operation

4.3.1 General

4.3.1.1 The appointed person's duties should include:

- a) planning the lifting operation (including approval of all risk assessments, lift categorizations and method statements), selection of the crane(s) and lifting accessories, instruction and supervision, and consultation with other responsible bodies to ensure effective collaboration as is necessary for the work to be undertaken safely;
- b) ensuring that the outcomes of the planning process are recorded in a lift plan;
- c) ensuring that adequate pre-operational checks, intermediate inspections, maintenance and thorough examination of the equipment have been carried out;

NOTE 1 For further information see BS 7121-2-3.

- d) ensuring that there is an effective procedure for reporting defects and incidents and for taking any necessary corrective action;
- e) taking responsibility for the organization and control of the lifting operation;
- f) ensuring that the crane supervisor and other members of the lifting team are fully briefed on the contents, scope and limits of the method statement (see 5.3); and

NOTE 2 This is generally acknowledged by the recipients by signing the briefing document.

- g) being familiar with the relevant parts of the project health and safety plan where the lifting operation is being carried out on a site where the Construction (Design and Management) Regulations 2015 [11] apply, and following, where appropriate, the recommendations of Annex B.

NOTE 3 Further guidance on roles and responsibilities under the Construction (Design and Management) Regulations 2015 [11] is given in the HSE's Managing health and safety in construction: Construction (Design and Management) Regulations 2015. Guidance on Regulations [12] and A short guide for clients on the Construction (Design and Management) Regulations 2015 [13].

4.3.1.2 The appointed person should be given the necessary authority for the performance of all these duties, including the authority to:

- a) stop the operation whenever they consider that danger is likely to arise if the operation were to continue;
- b) consult others with specialist knowledge and experience; and
- c) delegate duties and tasks, but not responsibilities, for any part of the safe system of work to suitably qualified individuals.

4.3.1.3 The appointed person should be aware of the limits of their knowledge and experience about lifting operations, and, when conditions exceed these limits, further advice should be sought.

4.3.1.4 Where the appointed person requires the assistance of specialists such as crane suppliers, geotechnical engineers, structural engineers and the designer of the load, care should be taken to ensure that these specialists have the necessary competence for the specific task for which assistance is sought.

4.3.2 Lift category and control measures

4.3.2.1 General

COMMENTARY ON 4.3.2.1

The complexity of a lifting operation depends on the hazards associated with the load path, the load itself and the equipment lifting it, and the environment in which the lifting operation is being carried out. [Table 1](#) lists examples of some load and environment hazards which can be encountered during lifting operations.

Table 1 — Example load and environmental hazards associated with lifting operations

Load hazards	Environmental hazards
Position of centre of gravity, including unknown position	Rain
High temperature load	Ice
Fluid load or unsecured elements within the load	Snow
Lifting of people	Wind
Location of lifting points	Sea state
Complex slinging arrangements	Railways
Uncertainty of magnitude of load: suction, adhesion, etc.	Roads
Use of more than one crane	Waterways
Integrity of load	Petrochemical plants
Dynamics of the load, e.g. floating load	Nuclear plants
High surface area and/or drag coefficient	Airports and aerodromes
Aerial load transfer	Telecommunications masts and other sources of electromagnetic radiation
Orientation of the load	Corrosive atmospheres
Load stability	Adjacent cranes or other plant
Fragility	Power lines: overhead and underground
Sharp edges	Public places
Load restraint	Partially-obscured load path
Lowering heavy loads from elevated locations	Uneven ground (pick-and-carry)
	Ground suction
	Partially-secured load (demolition)
	Lightning
	People (consequence of failure)
	Poor ground conditions, e.g. saturation
	Poor access

- 4.3.2.1.1** To enable a lift to be planned, supervised and carried out effectively, the appointed person should carry out the activities recommended in [4.3.2.2](#), [4.3.2.3](#) and [4.3.2.4](#), depending on whether an assessment of the hazards associated with the load, lifting equipment and the environment in which the crane is to be operated indicates that the lift is:
- basic, i.e. the weight of the load(s) can be simply established and there are no significant hazards within the working area or on the access route for the crane to the working area;
 - intermediate, i.e. there are significant hazards, either within the working area of the crane or on the access route for the crane to the working area; or
 - complex, i.e. the crane is used to lift complex loads or persons, where two or more cranes are used to lift the load, or where the lifting operation is carried out at a location with exceptional hazards.

NOTE 1 As demonstrated in [Figure 10](#), increases in either or both environmental complexity or load complexity (the “complexity index”; see [Table 2](#)) lead to the lift being allocated a higher category.

NOTE 2 Consideration of environmental hazards at the location of the operation includes the access and egress required for the crane and the suitability of the ground to take the loads imposed by the crane during preparation for the lift and during the lift itself.

NOTE 3 Load complexity includes characteristics such as weight, centre of gravity and presence of suitable lifting points. This can be established by a reliable source of information, measuring and weighing the load, or calculation (with allowance for possible inaccuracies).

- 4.3.2.1.2** Having identified the hazards associated with a particular lift, a hierarchy of control measures should be applied to eliminate or control those hazards and reduce the risks.

Figure 10 — Relationship between complexity index and lift category

Environmental complexity (E)	3	Complex	Complex	Complex
	2	Intermediate	Intermediate	Complex
	1	Basic	Intermediate	Complex
		1	2	3
Load complexity (L)				

Key

1 Low
2 Medium
3 High

NOTE [Table 2](#) shows how lifting the same load in differing environments and lifting different loads in the same environment can lead to different lift categories.

Table 2 — Illustration of the categorization of lifts based on environmental and load complexities

Complexity, variables and constants	Lift category		
	Basic	Intermediate	Complex
Increasing environmental complexity	The crane operator has clear sight of the load path and the load is lifted from and to the ground.	The load is to be placed over an obstruction such that the crane operator does not have clear sight of the landing area from the control position.	The load is to be placed on a structure at height, without line of sight and with overhead power lines in close proximity.
Constant low load complexity	A load of known weight with designated top lifting points and central centre of gravity. The load does not contain fluids, is not fragile and is inherently stable when landed.	A load of known weight with designated top lifting points and central centre of gravity. The load does not contain fluids, is not fragile and is inherently stable when landed.	A load of known weight with designated top lifting points and central centre of gravity. The load does not contain fluids, is not fragile and is inherently stable when landed.
	Complexity index E1:L1	Complexity index E2:L1	Complexity index E3:L1

Table 2 (continued)

Complexity, variables and constants	Lift category		
	Basic	Intermediate	Complex
Increasing load complexity	A load of known weight with designated top lifting points and central centre of gravity. The load does not contain fluids, is not fragile and is inherently stable when landed.	A load of estimated weight with an estimated centre of gravity and without designated lifting points. The load does not contain fluids, is not fragile and is inherently stable when landed.	A load of estimated weight and centre of gravity and without designated lifting points. The load contains fluids, is fragile and is not stable when landed.
Constant low environmental complexity	The crane operator has clear sight of the load path and the load is lifted from and to the ground.	The crane operator has clear sight of the load path and the load is lifted from and to the ground.	The crane operator has clear sight of the load path and the load is lifted from and to the ground.
	Complexity index E1:L1	Complexity index E1:L2	Complexity index E1:L3

4.3.2.2 Basic lift

For a basic lift, the duties of the appointed person should include:

- a) an assessment of the proposed location of the lifting operation as part of the planning process to check that there are no significant hazards in the operating area, including any areas required for access or setting up of the crane;

NOTE 1 The appointed person may make an assessment on the basis of information with which they have been provided, visit the site personally or delegate a competent person to undertake the visit on their behalf.

- b) selecting the crane, based on:
- 1) the load characteristics, including weight of the load and any lifting accessories;
 - 2) the maximum height of lift;
 - 3) the maximum radius required and/or the reach and range of movement required; and
 - 4) the rated capacity of the crane, as specified by the manufacturer/installer in the information for use supplied with the crane;

NOTE 2 The manufacturer's sales leaflets ought not to be relied on for the rated capacity for a specific crane.

- c) establishing the maximum permissible wind speed in which the lifting operation can be safely undertaken, taking account of the maximum permissible wind speed specified by the manufacturer for the crane and movement of the load in the wind, including any reduction in permissible wind speed or restrictions in rated capacity required for the wind area of the load, and ensuring that the crane is not operated in wind speeds in excess of that established;

NOTE 3 See BS 7121-1:2016, Annex D, for the effect of wind speed.

- d) ensuring that the crane has a current report of thorough examination stating that it is safe to use, with evidence that pre-use checks have been carried out, and confirming that the equipment is considered safe;
- e) ensuring that the crane has been adequately maintained and that records of the maintenance are available;
- f) selecting appropriate lifting accessories, including their method of attachment to the load, configuration, centre of gravity and any protection used to prevent damage;

- g) ensuring that lifting accessories are thoroughly examined at least within the previous six months, and inspected and checked before use, and that the report of thorough examination is available to confirm that the lifting accessories are safe to use;
- h) ensuring that a system for reporting and rectifying defects is in place;
- i) determining any requirement for personnel in addition to the crane operator, such as a slinger-signaller, signaller or dedicated crane supervisor;

NOTE 4 For guidance on the combination of roles during a basic lift, see [BS 7121-1:2016](#), 6.2.8.

- j) designating a suitable person to check that the lifting accessories and any lifting points on the load are free from any obvious defects before attaching the load to the crane;
- k) defining the extent of any exclusion zone required and how it is to be controlled;
- l) ensuring that the outcomes of the planning process, including the hazards identified (see [Table 1](#)) and the lift categorization (see [Figure 11](#) and [Table 2](#)), are recorded in the lift plan which is signed by the appointed person;

NOTE 5 In many instances, a generic lift plan is suitable for basic lifts, provided that no additional hazards are identified on site.

NOTE 6 A risk assessment and method statement are parts of the lift plan.

- m) briefing all persons involved in the lifting operation about the safe system of work described in the method statement, and obtaining signed acknowledgement from those briefed that they have understood;
- n) instructing all persons involved in the lifting operation to seek advice from the appointed person if any change is required to the lifting operation, or if any doubts about safety arise;
- o) if one or more hand lines/tag lines are required to give more control of the load, designating persons to handle the lines;
- p) checking that no changes are required in the safe system of work if numerous loads are to be lifted over a long period; and
- q) ensuring that a crane supervisor is designated to direct personnel and to identify any hazards not identified in the lift plan, and that the operation is carried out in accordance with the method statement.

4.3.2.3 Intermediate lift

For an intermediate lift, the duties of the appointed person should include the following, in addition to those in [4.3.2.2](#):

- a) identifying all significant hazards in the operating area, including any areas required for access or setting up of the crane, which may involve an assessment of the proposed location of the lifting operation as part of the planning process, which itself may involve a visit to the site;
- NOTE The appointed person may visit the site personally or delegate a competent person to undertake the visit on their behalf.*
- b) ensuring that a site and/or task-specific risk assessment and method statement are prepared, detailing control measures for the identified risks;
 - c) liaising with any other person or authority, as required to overcome any hazard, by including any necessary corrective action or special measures in the safe system of work; and
 - d) considering the effect of the lifting operation on surrounding property or persons, including the general public, arranging for appropriate action to minimize any adverse effects and giving appropriate notice to all persons concerned.