

**The Delivery Hub health, safety and environment
Raising the bar 1**

Plant and equipment

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Plant and equipment – introduction

Objective

To benchmark health and safety standards for operated plant (including the competence requirements for operators) that will be used across the Highways England Network.

This document is to be used in conjunction with project specific vehicle and plant management plans and is subject to ongoing improvement as new technologies are developed.

Background

Personnel being struck by vehicles and plant attribute to on average ten fatal injuries and approximately 150 major injuries in the construction industry each year. Hence the control of risks associated with plant, passing through or working within our worksites is of paramount importance.

A suite of best practice standards has been produced which set the health and safety requirements for items of operated plant that is used frequently on Highway Maintenance and civil engineering projects.

The requirements contained in the standards will be utilised by all delivery partners when procuring plant for use on Highways England Network and Depots.

Minimum requirement

This section sets out the minimum requirements for both the plant and the operator/ driver in order to achieve current best practice.

Desirable

This section lists requirements for plant and operators/drivers that may not apply to every situation, but also may raise the bar in approach.

Hazards/risks

Significant hazards/risks are identified in this section however the use of plant on site will be subject to a full documented risk assessment.

Legislation

There are references to legislation throughout the document however it is not intended to list all legislative requirements relating to plant operations. For further information please refer to the following applicable legislation (note this is not exhaustive):

- Provision and use of work equipment regulations
- Lifting operations and lifting equipment regulations
- Work at height regulations
- Personal protective equipment (PPE) regulations
- Control of substances hazardous to health (COSHH) regulations
- Road vehicles (construction and use) regulations
- Construction plant and equipment (harmonisation of noise emission standards) regulations
- The control of noise at work regulations

General

All Highways England Sites must use 3D Machine Control (3DMC) for all earthworks operations, unless a specific business case is provided.

Minimum requirements

- Compliant with current UK legislation
- Compliant with EC Machinery Directive 2006/42/EC and supplied with a declaration of conformity
- Evidence of pre-hire inspection
- Evidence of regular inspection plus 'next service and or inspection due' date/hours sticker
- All plant to be inspected prior to first use and the appropriate pre-start check sheet completed and daily recorded inspections thereafter. Inspection sheet to be available in the cab and ideally visually displayed.
- Operator instruction manual available with plant/machine.
- All safety decals in place and legible.
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic. E.g. Physical barrier specifically designed to prevent plant striking passing traffic, slew restrictors, 'virtual wall', banks man with remote cut out etc.
- Access handrails and steps to be colour coded [RAL 1026 or RAL 6038].

- Wheel Nut indicators on all wheel nuts unless proved impractical.
- Remote control units must be checked to ensure sufficient battery power is available for the intended operations. It should be clean and free from damage including the wearing harness and umbilical cable (where relevant). The operation of the emergency stop button and any other isolating devices must be checked for operational function.

Plant undertaking lifting

- Report of thorough examination within the past 12 months
- Report of thorough examination within the past 6 months for all lifting accessories
- Lifting duty chart for current machine configuration.

Operator/driver (excluding none working delivery drivers)

- Attended full induction prior to starting work including passing a drug and alcohol test and subject to ongoing medical screening/surveillance (RTB B12)
- Where the vehicle/ plant requires the driver to hold a current valid driving licence to drive the plant the public highway. The driver/ operator must hold a current valid driving licence with appropriate category for the vehicle / plant being utilised on site.
- Trained and competent in the equipment being operated.
- Complete and record daily pre-use inspections
- Full site-defined PPE required if outside cab none loose fitting PPE required in all cases to avoid catching on controls.
- Plant with remote controls, operators must be suitably trained and competent in the use of this type of equipment/control.

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- Plant with remote controls, operators must be suitably trained and competent in the use of this type of equipment/control.

None working delivery drivers on site outside cab

- Full site-defined PPE

1.1 180° excavator/backhoe

Minimum requirement

Plant

- On public highway – taxed, registered and insured for use on public highway
- Roll over protective structure (ROPS)
- Falling objects protective structure (FOPS) to cab by risk assessment dependent upon work being undertaken.
- Seat belts must be fitted and worn.
- Mirrors/colour CCTV to satisfy 1m high at 1m distance visibility criteria
- Flashing amber beacon
- An external green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling in public highways.
- Brake efficiency testing to be carried out and recorded e.g. daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- Reversing alarm to be fitted working and audible outside of the cab.
- Tooth guards must be used at all times when on public highway
- If wheeled duties use axle locks for other duties stabilisers must be deployed
- Isolation controls by a secondary device, such as seat rotation
- Unless demonstrated that it will not be used for lifting:
 - Six month thorough examination on lifting accessories
 - Certified lifting point required for all lifting duties
 - SWL to be clearly marked on certified lifting points
 - Audible or visual overload warning system fitted and operational
 - A machine specific lifting duty sheet, lift plan and risk assessment
- Check valves must be fitted to excavators boom and dipper circuits
- If Quick hitch fitted:
 - Must be fully automatic double locking for machines over 5 tonnes (unless fixed as a direct attachment - no quick hitch)
 - Have an in-cab audible alarm to warn of detachment
 - Copy of manufacturers operating instructions
 - Pre-use Inspection signed off
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines' must be followed.
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic e.g. slew restrictors, banks man with remote cut out etc.



Operator

- CPCS card – category A10 (<5t) or A12 (>5t)
- Competency assessment prior to being put to work – be familiar with machine
- Authorisation required prior to driving on public highway
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Seat belt must be worn
- Engine must be turned off and keys removed from the cab before leaving the cab if left unattended
- Evidence of having signed on to the appropriate risk assessment for the task
- If quick hitch fitted:
 - Be briefed on safe use of quick hitches
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
 - Lift plan and/or permit to lift must be briefed and understood
 - Operator shall be trained in how to use excavator as a crane and specific lifting attachments

Desirable

- A 360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero in all directions.
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Complete people exclusion area around plant and operation
- When using a lifting eye, a swivel hook should be considered to ensure load can be maneuvered without risk of swinging back or overloading
- A list of weights of potential items to be lifted should be maintained
- Use of slew restrictors where appropriate
- Engine emissions compliant to EU Tier iii B or better.
- Machine under six years since date of manufacture.
- System to prevent operation in reverse at speed
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refueling and maintenance
- Danger of crushing in slew zone
- Overturning if on uneven ground or lifting duties exceeded
- Use of accessories and how they are attached/inspected such as breaking hammer
- Effect of weather visibility and working/traffic surfaces
- Clothes can get snagged on controls prior to release of servo isolator/safety handle
- Plant and personnel interface
- Overhead obstructions – cables/bridges
- Public interface – working alongside pedestrians/vehicles
- Underground services
- Limitations to all round visibility
- Transportation including loading/unloading
- Hazardous substances such as fuels, oils and greases

1.2 Forward and side Tipping Dumper

General

Dumpers and dump trucks must always be operated in accordance with manufacturers instructions and shall not be filled above the safe load line inside the skip or above the metal rim, where no safe load line is indicated to avoid restricting driver's vision.

Minimum requirement

Plant

- Selection of dumpers; one tonne and below, plus seven tonne and above must have a specific risk assessment prior to work to determine suitability for task. This must take account of the inclines and speeds at which they are to be used.
- For use on public highway must be taxed and registered
- Roll over protective structure (ROPS)
- Flashing amber beacon
- An external green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling in public highways.
- The operator must have all round visibility of 1m high by 1m distant from the machine by use of aids (e.g. proximity warning) if line of sight not possible.
- Reversing alarm to be fitted working and audible
- Locking caps/covers
- Isolation switch with key

- Brake efficiency testing to be carried out and recorded e.g. daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- Tow hitch (where permissible) must have correct pin with chain attached to dumper
- Tipping mechanism to be in good condition

Operator

- CPCS card category A09A forward tipping wheeled, A09B – forward tipping tracked
- The operator must hold the correct category of driving licence for the vehicle / plant being utilised . (NB: drivers of dumpers over 3.5 tonnes GVW must be 21 or over)
- Authorisation required prior to driving on public highway
- Evidence of having signed on to the appropriate risk assessment for the task
- Compliance with pre-use, daily and weekly defect reporting system
- Competency assessment prior to being put to work – be familiar with machine
- Seat belt must be worn
- Do not tip whilst on the move or during high winds
- Engine must be turned off and keys removed before leaving vehicle unattended



- If towing required:
 - Be trained in towing and operational risk assessed
 - Register of persons authorised to tow must be maintained
 - Special care must be taken to weigh towed especially for breaking activities
- Operator must consider stability issues when towing and the operator must refer to operators manual prior to towing.

Desirable

- Load measurement device
- Directional white noise reversing warning
- Complete people exclusion area around plant and operation
- Where turntable dumpers are narrow mouth, or high lift equipment, extra training must be given to the operator so that the dumper is used correctly
- A three-way or side-tipping dumper must be three-way complete left or right or forward only. Diagonal tipping should be avoided as non-compliance can result in loss of stability
- Engine emissions EU Tier iii B or better
- Machine under six years since date of manufacture
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Danger of crushing
- High risk of overturning at speed and on inclines. Refer to manufacturer' recommendations
- Consider risk of towed items, such as roller
- Transportation including loading/unloading
- Falls/overturning into excavations
- Plant and personnel interface
- Public interface – working alongside pedestrians/vehicles
- All round visibility/loads restricting driver vision
- Effect of weather on visibility and working/traffic surfaces
- The buckets on side tipping dumpers can protrude significantly when turned to the side, creating a hazard to pedestrians
- Hazardous substances, such as fuels, oils and greases
- Wet materials/clay are prone to stick and cause instability during tipping

1.3 Mini excavator <10 tonne

Minimum requirement

- 12 month thorough examination
- Tip over protection structure (TOPS) to cab as minimum or rollover protection structure (ROPS) and Falling objects protective structure (FOPS) to cab by risk assessment
- Seat belts must be fitted and worn
- Mirrors/colour CCTV to satisfy 1m high at 1m distance visibility criteria
- Flashing amber beacon
- Risk assessments to be completed to assess the largest/most stable machine possible to complete the task
- Check valves must be fitted to excavators' boom and dipper rams for machines of five tonnes and above.
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - An external green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling in public highways.
- Unless demonstrated that it will not be used for lifting:
 - Six month thorough examination on lifting accessories
 - Certified lifting point required for all lifting duties
 - SWL to be clearly marked on all certified lifting points
- Audible or visual overload warning system fitted and operational

- When using a lifting eye, a swivel hook must be used to ensure load can be maneuvered without risk of swinging back or overloading. Short sling chain to be employed to stop side load
- A machine specific lifting duty sheet, lift plan and risk assessment
- If quick hitch fitted:
 - Must be fully automatic double locking for machines over 5 tonnes (unless fixed as a direct attachment - no quick hitch)
 - Have an in-cab warning alarm where quick hitch fitted
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic. E.g. slew restrictors, banks man remote cut out or track lock

Operator



- CPCS card category A58A (<10T)
- Evidence of having signed on to the appropriate risk assessment for the task
- Operator to ensure buckets are carried safely at all times
- If lifting operations are required to be undertaken the operator must be trained in how to use the excavator as a crane and in any specific lifting devices.
- Competency assessment prior to being put to work – be familiar with machine
- Do not break ground unless briefed on, received and fully understood a permit to break ground
- Seat belt must be worn
- Engine must be turned off if approached by others and keys removed from the cab before leaving the cab unattended for any reason
- If quick hitch fitted:
 - Be briefed on safe use of quick hitches
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
 - Lift plan and/or permit to lift must be briefed and understood
 - Operator shall be trained in how to use specific lifting attachments

Desirable

- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Complete people exclusion area around plant and operation
- Extendable tracks to enhance stability
- Travel movement alarm to be fitted and audible in working conditions
- When used for lifting a list of weights of potential items to be lifted should be maintained
- With quick hitch, an in-cab warning alarm for detachment
- Use of slew restrictors where appropriate
- Engine emissions EU Tier iii B or better
- Machine under Five years since date of manufacture
- Reversing cameras on machines of > eight tonnes

1.4 Tracked 360° excavator

Minimum requirement

Plant

- 12 Month thorough examination
- Roll over protection structure (ROPS) to cab and Falling objects protective structure (FOPS) where required by risk assessment where the working environment requires.
- Seat belts must be fitted and worn
- A 270°/360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero.
- Movement alarm fitted, working and audible outside the cab.
- Flashing amber beacon
- Work at height protection to provide Safe work environment when on the machine for refueling and maintenance etc.
- Handrails on body where access required
- Check valves must be fitted to excavators boom and dipper circuits
- An external green light fitted to indicate when the seat belt is fastened.



- Unless demonstrated that it will not be used for lifting:
 - Six month thorough examination on lifting accessories
 - Audible or visual overload warning system fitted and operational
 - Certified lifting point required for all lifting duties
 - SWL to be clearly marked on all lifting points
 - A machine specific lifting duty sheet, lift plan and risk assessment
 - If lift and carry duties to be undertaken specific risk assessment to be completed taking into account manufacturer's instructions.
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic.

E.g. slew restrictors, banks man remote cut out or track lock

- If quick hitch fitted:
 - Must be fully automatic double locking for machines over 5 tonnes (unless direct attachment-no quick hitch)
 - Have an in-cab warning alarm
 - Copy of manufacturers operating instructions
 - Pre-use inspection signed off
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Plant

- CPCS card – category A58a (<10t) or A59a (>10t)
- Operator to ensure buckets are carried safely at all times
- All hoses to be inspected regularly
- Evidence of having signed on to the appropriate risk assessment for the task
- Compliance with pre-use, daily and weekly defect reporting system
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Seat belt must be worn
- Engine must be turned off if approached by others and keys removed from the cab before leaving the cab if left unattended
- Competency assessment prior to being put to work – be familiar with machine
- If quick hitch fitted:
 - Be briefed on 'safe use of quick hitches'
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
- CPCS card – category for lifting operations A58c (<10t) or A59c (>10t)
 - Lift plan and/or permit to lift must be briefed and understood
 - Operator shall be trained in how to use specific lifting attachments

Desirable

- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Complete people exclusion area around plant and operation
- Zero tail swing ballast/counterweight
- Track direction indicator note
- When used for lifting a list of weights of potential items to be lifted should be maintained
- Seat belt operation interlocked with ignition switch/warning indicator
- Engine emissions EU Tier iii B or better
- Machine under five years since date of manufacture
- Use of slew restrictors where appropriate

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Danger of crushing in slew zone
- Overturning if lifting duties exceeded
- Use of accessories and how they are attached/inspected – such as breaking hammer
- Effect of weather visibility and working/traffic surfaces
- Controls can be caught inadvertently if near to safety lever
- Clothes can get snagged on controls prior to release of servo isolator/safety handle
- Plant and personnel interface
- Overhead obstructions – cables/bridges
- Public interface – working alongside pedestrians/vehicles
- Underground services
- Limitations to all round visibility
- Transportation including loading/unloading
- Hazardous substances such as fuels, oils and greases

1.5 Wheeled 360° excavator

Minimum requirement

Plant

12 month thorough examination

- On public highway – taxed, registered and insured
- Seat belts must be fitted and worn
- Roll over protection structure (ROPS) to cab and Falling objects protective structure (FOPS) where required by risk assessment where the working environment requires.
- Mirrors/colour CCTV to satisfy one metre high at one metre distance visibility criteria
- Brake efficiency testing to be carried out and recorded e.g. daily user park and service brake and dynamic brake as recommended by manufacturer
- Flashing amber beacon
- Work at height protection to provide Safe work environment when on the machine for refueling and maintenance etc.
- Handrails on body where access required
- Movement alarm fitted, working and audible outside the cab.
- An external green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling in public highways.
- Check valves must be fitted to excavators boom and dipper circuits
- Unless demonstrated that it will not be used for lifting:
 - Six month thorough examination on lifting accessories
 - All lifting points to be certified.
 - SWL to be clearly marked on all certified lifting points
 - A machine specific lifting duty sheet, lift plan and risk assessment
 - If lift and carry duties to be undertaken specific risk assessment to be completed taking into account manufacturer's instructions.
 - Audible or visual overload warning system fitted and operational
- If quick hitch fitted:
 - Must be fully automatic double locking for machines over 5 tonnes (unless direct attachment-no quick hitch)
 - Have an in-cab warning alarm
 - Copy of manufacturers operating instructions
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic.E.g. slew restrictors, banks man remote cut out



Operator

- Pre-use (daily) Inspection signed off and to be available in the cab
- CPCS card – category A58B (<10t) or A59B (>10t)
- The operator must hold the correct category of driving licence for the vehicle / plant being utilised.
- Authorisation required prior to driving on public highway
- Evidence of having signed on to the appropriate risk assessment for the task
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Seat belt must be worn
- Engine must be turned off and keys removed from the cab before leaving the cab if left unattended
- Operator to ensure buckets are carried and secured safely when being transported
- Compliance with pre-use, daily and weekly defect reporting system
- Competency assessment prior to being put to work - be familiar with machine
- If wheeled duties use axle locks, for other duties stabilisers must be deployed
- If quick hitch fitted:
 - Be briefed on safe use of quick hitches
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
- CPCS card – category for lifting operations A58c (<10t) or A59c (>10t)
 - Lift plan and/or permit to lift must be briefed and understood
 - Operator shall be trained in how to use specific lifting attachments

Desirable

- A 360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero in all directions.
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Complete people exclusion area around plant and operation
- When using lifting eye, a swivel hook should be considered to ensure load can be manoeuvred without risk of swinging back or overloading
- Travel direction indicator
- When used for lifting a list of weights of potential items to be lifted should be maintained
- engine emissions compliant to EU Tier iii B or better
- Machine under five years since date of manufacture
- System to prevent operation at speeds in reverse
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Danger of crushing in slew zone
- Overturning if lifting duties exceeded
- Use of accessories and how they are attached/inspected such as breaking hammer
- Effect of weather visibility and working/traffic surfaces
- Clothes can get snagged on controls prior to release of servo isolator/safety handle
- Operating in reversing mode
- Plant and personnel interface
- Overhead obstructions – cables/bridges
- Public interface – working alongside pedestrians/vehicles
- Underground services
- Limitations to all round visibility
- Transportation including loading/unloading
- Hazardous substances such as fuels, oils and greases

1.6 Crawler crane

General

Hydraulic cranes only permitted not mechanical.

Minimum requirement

Plant

- CE Declaration of Conformity
- Report of thorough examination within the past 12 months
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide (CIG 1001; June 2010)
- Current six monthly LOLER thorough examination certificate for all lifting tackle carried
- Current six monthly LOLER certificate for the crane
- Lifting accessories marked with SWL
- Fitted and operational audible or visual overload warning system
- Operator instructions must be available on the machine
- Flashing amber beacon
- Mirrors/colour CCTV to satisfy one metre high at one metre distance visibility criteria
- Handrails on walkways and body where access required

- Where cranes have extendable tracks and where there is a limitation on gradient for carrying out extension/retraction the crane must be fitted with a spirit level in the operators sight line showing acceptable limits.
- Reversing alarm to be directional and white noise, working and audible outside of the cab.
- Slew alarms
- Door lock keys supplied
- Aircraft warning lights fitted (if working within the vicinity of aerodromes)
- Slew, jib height and radius restrictors if working in the vicinity of overhead power lines, railways, adjacent live traffic, etc
- Hook block over hoist cut-out facility
- Boom hoist cut-out facility
- Handrails fitted to running boards and crane upper structure
- Load bearing hydraulic cylinders fitted with check valves
- Fire extinguisher in cab



- Crane fitted with anemometer or other device to monitor in service wind speeds
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine/load will be prevented from striking passing traffic. E.g. slew restrictors, banks man remote cut out or track lock

Raising or lowering of personnel

- Carrier hoisting and lowering ropes minimum diameter of 8 millimetres
- Hook fitted with safety catch
- Ability to restrict the working speed of all crane functions to 0.5 metre per second
- Control levers return to neutral automatically
- SWL of crane configuration in use is at least twice the rated capacity of the carrier
- Power lowering capacity fitted to the crane. If not, free fall capability must be locked out

Refer to BS7121 -1:2016 for further guidance

Operator

- Pre-use (daily) inspection signed off
- Lifting plan and permit to lift in place as appropriate
- CPCS card category A02B
- Valid medical certificate
- Evidence of familiarisation training for type of crane to be operated
- Evidence of having signed on to the appropriate risk assessment and lift plan for the task
- Engine must be turned off if approached by others and keys removed from the cab before leaving the cab unattended for any reason

Desirable

- Jib head tracker if working on sites with blind lifting issues
- Counterweight mounted colour CCTV
- Block stand to be provided when reeving rope into hook block whilst block is lying down
- A 360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero in all directions.
- Window guards
- All round vision system to avoid potential crushing incident
- Operator to have minimum of three years relevant operating experience
- Means for operator to monitor hoist rope tension such as camera or mirror
- Red, amber and green high level illumination to indicate crane is operating within safe limits
- Crane Supervisor to have hand held anemometer to measure wind speeds
- Seat belt operation interlocked with ignition switch/warning indicator
- engine emissions compliant to EU Tier iii B or better

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Danger of crushing in slew zone
- Load path – slewing over site personnel
- Overturning if lifting duties exceeded
- Ground conditions capable of withstanding imposed track loadings
- Imposed loadings on underground services
- Dropped loads
- Effect of weather visibility and working/traffic surfaces
- Operating in reversing mode
- Plant and personnel interface
- Overhead obstructions – cables/bridges/power lines/telephone lines
- Jib clash with adjacent cranes/tall plant
- Public interface – working alongside pedestrians/vehicles
- Limitations to all round visibility
- Use of jib walkways – falls from height
- Hazardous substances such as fuels, oils and greases
- Potential excessive noise

1.7 Lorry loader crane

Minimum requirement

Vehicle requirements

- Current VED and operator 'O' licence displayed in the cab windscreen.
- Current MOT certificate
- Compliance with road vehicles (construction and use) regulations (spray suppression, under run guards, lighting, markers etc.)
- Amber hazard beacons and highway/motorway maintenance' decal
- If engaged in works on the highway not in an established works zone comply with the conspicuity requirement of section 05.2 of chapter 8
- Safe access to all areas where operator or slinger/signaller required to work
- Reversing alarm to be fitted, white noise and audible outside of the cab.
- Fitted with all round vision aids to satisfy 1m high at 1m distance
- Edge protection or fall arrest arrangements where access to vehicle body required
- Audible and visual warning to be fitted in the cab to remind driver / operator including the hydraulic arm fitted, is not safety stowed prior to travelling
- Fleet Operator Recognition Scheme (FORS) compliant - Minimum Silver

Crane requirements

- Report of thorough examination within the past 12 months
- Have either a 4 yearly overload test certificate or thorough examination in line with ALLMI guidance note 010 and CPA-ALLMI management of lifting operations with lorry loaders best practice guide June 2010
- Current six monthly LOLER certification for all on-board lifting tackle and accessories
- Accessories to be marked with safe working loads
- Crane duties chart displayed on boom or at operator's station
- Functioning audible warning devices – safe load indicator/rated capacity indicator/device with hydraulic lock-out/warning light/alarm
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine/load will be prevented from striking passing traffic. E.g. slew restrictors, banks man remote cut out.



Driver/operator

- The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC.
- CPCS card category A36 with endorsement for A – hook; B – clamshell Bucket C –Hydraulic clamp
- RTITB and ALLMI lorry loader operator certification is also acceptable
- Competency assessment prior to being put to work – be familiar with machine
- Evidence of having signed on to the appropriate risk assessment and lift plan for the task.

Desirable

- Outrigger lock-out preventing crane operation with legs in stowed position
- Stabiliser legs not stowed warning device
- Engine emissions compliant to EURO 4 or better
- Sensor de-rate system if crane is used short-rigged
- Traffic cones or other means of maintaining safe zones and avoiding pedestrian traffic near lifting
- Seat belt operation interlocked with ignition switch/warning indicator
- Use of slew restrictors where appropriate
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Load path – slewing over site personnel
- Overturning if lifting duties exceeded
- Ground conditions capable of withstanding imposed outrigger loadings
- Imposed loadings on underground services
- Dropped loads/instability of load
- Plant and personnel interface
- Overhead obstructions – cables/bridges/power lines/telephone lines
- Jib clash with adjacent cranes/tall plant
- Public interface – working alongside pedestrians/vehicles
- Effect of weather visibility and working/traffic surfaces
- Limitations to all round visibility
- Hazardous substances such as fuels, oils and greases

1.8 Mobile elevated working platform

Minimum requirement

Plant - all MEWP's

- Report of thorough examination within the previous 6 months
- Power failure safe lowering system
- When boom type MEWP's are used in situations involving a risk of crushing against overhead structures or equipment, specific control measures must be implemented and the use of anti-trapping secondary guarding devices must be used.
- Travel alarm to be fitted, working and audible
- SWL displayed in platform
- Outrigger/wheel loading details
- Controls must be shrouded and be fitted with anti-crush protection measures
- Door lock keys in cabs of lorry mounted booms
- Direction of travel must be clearly indicated
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic.

E.g. slew restrictors or banks man remote cut out
- If engaged in works on the highway not in an established works zone comply with the conspicuity requirement of section 05.2 of chapter 8

Boom type MEWP's only

- Flashing amber beacon
- Harness anchorage points in boom platform

Operator

- Daily inspection signed off
- CPCS card with category of MEWP to be operated; A25 – scissor; A26 – boom A:vehicle mounted B: Self-propelled; A27 – mast climber, or
- IPAF certification (1a – static vertical; 1b – static boom; 3a – mobile vertical; 3b – mobile boom)
- Trained in use of harness as appropriate
- Evidence of familiarization training on the type of MEWP being used, including second/safety man on the ground to operate emergency lowering system
- Evidence of having signed on to the appropriate risk assessment and lift plan for the task
- Compliance with pre-use, daily and weekly defect reporting system
- Competency assessment by site supervisor prior to being put to work
- Evidence of familiarisation training for the particular type of MEWP to be operated, including emergency recovery from the ground
- Use of harness – harness to be worn in boom type MEWP or in the scissor lift if travelling and to be appropriate for specific use
- Be briefed on the site plant and vehicle management procedures and check for overhead obstructions and hazards



Boom type MEWP's only

- MEWP's to have 110V supply available in basket pre-wired
- Wheel nut indicators fitted
- Tilt alarm fitted
- Fire suppression in engine compartment if working in a zone of fire risk or if emergency basket to basket evacuation procedures not practical
- Fish eye mirrors for all round vision when travelling
- Engine emissions compliant to Tier iii B or better
- Audible alarm for lowering and for entrapment of operator
- Toolbox equipment storage in basket
- All persons managing or supervising the works to hold a "MEWP's for Managers" qualification
- Movement sensors-anti entrapment-secondary guarding.
- Decals detailing tyre pressures and wheel nut torque settings.

Scissor type MEWP's only

- Flashing beacon on scissor lift
- Harness anchorage point in scissor lift (mandatory if it is to be used whilst travelling)

Boom type MEWP's only

- Audible parking position of the boom in air should not be permitted

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Ground conditions/underground services – imposed wheel/outrigger loadings
- Falls from height/ falling objects
- Access into cab/refuelling and maintenance
- Danger of crushing in slew zone
- Operator recovery from an incapacitated machine
- Overturning if lifting duties exceeded
- Ground conditions capable of withstanding imposed track loadings
- Uneven ground conditions and driving up ramps during travelling can create a risk of crush/impact injury
- Handling materials on MEWP platforms can overload machinery or be at risk of falling
- Effect of weather visibility and working/traffic surfaces
- Potential for clashes with other plant working in the vicinity
- Stability when travelling machine with platform raised
- Clearances between buildings/other platforms

- High wind speed
- Operating in reversing mode
- Plant and personnel interface
- Overhead obstructions – cables/bridges/power lines/telephone lines
- Public interface – working alongside pedestrians/vehicles
- Limitations to all round visibility
- Hazardous substances such as fuels, oils and greases
- Interface with crane/load during lifting operations (e.g. if MEWP used for completing joints) with particular consideration

1.9 Mixer truck

Minimum requirement

Vehicle requirements

- Current VED and operator 'O' licence displayed in the cab windscreen.
- Current MOT plating certificate
- Reversing alarm to be fitted, working and audible outside of the cab.
- On public highway, taxed and registered and fully compliant with road vehicles (construction and use regulations)
- All current certificates/service documents provided
- Full handrail protection to platform and tank
- Fleet Operator Recognition Scheme (FORS) compliant –minimum silver
- If engaged in works on the highway not in an established works zone comply with the conspicuity requirement of section 05.2 of chapter 8

Driver/operator

- The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC.
- Evidence of having signed on to the appropriate risk assessment for the task
- Demonstrable training and experience in operation of mixer truck
- Compliance with pre-use daily and weekly defect reporting system

Desirable

- Reversing alarm to be directional and white noise
- Isolation method independent of factory fitted locks
- Locking caps/covers to fuel and all other tanks
- Statement on hours to next service
- Safe access to all areas where the operator is required to work including full handrail protection etc
- Operator to be competency assessed in dealing with spills and environmental protection
- Seat belt operation interlocked with ignition switch/warning indicator engine emissions compliant to EURO 4 or better
- Decals detailing tyre pressures and wheel nut torque settings.



1.10 Telehandler

Minimum requirement

Plant

- Falling object protective structure (FOPS) and rollover protection (ROPS) to cab
- Fitted and operational audible or visual overload warning system (RCI/RCL)
- Seat belts must be fitted
- Flashing amber beacon
- An external green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling in public highways.
- Reversing alarm to be fitted working and audible outside of the cab
- Mirrors/CCTV to satisfy one metre high at one metre distance visibility criteria
- On public highway – taxed, registered and insured
- Report of thorough examination within the previous 12 months (report required within previous six months if machine being used in conjunction with man-riding basket)
- Report of thorough examination within the previous six months for all on-board lifting tackle and/or fork attachments
- Lifting duty chart to be displayed on boom or in cab
- If lifting from forks (underslinging) attachments must be fixed with heel pins (not T screws) and have specific lift plan
- Forks to be folded/secured if travelling on public highway
- Protective mesh to be in place on jib side of cab if window is of opening type
- No materials including lifting tackle to be stored beneath the boom
- Boom ram lock facility must be provided with the machine
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- Only fully integrated man-riding baskets are permitted when supported by a task specific risk assessment and lift plan.
- Brake efficiency testing to be carried out and recorded e.g. daily user park and service brake and dynamic brake efficiency test at maximum six monthly intervals



Operator

- CPCS card category A17
- The operator must hold the correct category of driving licence for the vehicle / plant being utilised
- Authorisation required prior to driving on public highway
- Check for ground conditions prior to lifting and must consider stabilisers where appropriate
- Competent to check rated capacity indicator (RCI)
- Machine levelling devices must be used in all cases if fitted
- Operator must ensure the boom is carried at a safe level accordance with the manufacturer's recommendations
- Evidence of having signed on to the appropriate risk assessment/lift plan for the task
- Compliance with pre-use, daily and weekly defect reporting system
- Competency assessment prior to being put to work – be familiar with machine and telehandler attachments
- Seat belt must be worn

Desirable

- A 360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero in all directions.
- Tracker unit – immobilising method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Complete people exclusion area around plant and operation

- Inclinometer gauge and/or decal advising of gradient limits for safe operation
- Boom angle indicator
- Tyre pressure indicators
- Maintain a list of weights of potential items to be lifted
- Machine under six years since date of manufacture
- Engine emissions compliant to EURO 4 or better
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Overturning if lifting duties are exceeded or use on uneven ground
- Effect of weather visibility and working/traffic surfaces
- Clothes can get snagged on controls prior to release of servo isolator / safety handle
- Plant and personnel interface
- Overhead obstructions – cables/bridges
- Public interface – working alongside pedestrians/vehicles
- Limitations to all round visibility
- Transportation including loading/unloading
- Hazardous substances such as fuels, oils and greases

1.11 Compressor/air systems

Minimum requirement

Plant

- Unique ID number to be displayed on plate including VIN
- Noise emissions label in compliance with OND 2000/14/EC
- Evidence of regular inspection and maintenance
- All safety labels (decals) in place
- All current pressure systems regulation certificates in place
- Canopy to have integral fuel bunding for environmental protection
- Whip checks to be provided between ALL hose connections, compressor and tools
- Copy of manufacturer's operating instructions
- Towing by eye type attachment only.
- If engaged in works on the highway not in an established works zone comply with the conspicuity requirement of section 05.2 of chapter 8

Operator

- Full induction attended prior to starting work
- Evidence of having signed on to the appropriate risk assessment
- Full site-defined PPE required
- Demonstrable training and experience in operation of compressor/air system
- Compliance with pre-use, daily/weekly defect reporting system
- Competency assessment prior to being put to work – be familiar with machine and HAVS monitoring requirements

Desirable

- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and other tanks
- Statement of hours to next service
- Security hitch lock
- Engine emissions compliant to Tier iii B or better
- Decals detailing tyre pressures and wheel nut torque settings.



Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Towing and lifting operations
- Access for refuelling and maintenance
- Overturning
- Loading/unloading onto transport
- Flying debris
- Trailing hoses
- Manual handling when moving compressor and when using of heavy attachments
- Open hoses when airline switched on
- Noise and vibration
- Plant and personnel interface
- Public interface – working alongside pedestrians/vehicles
- Hazardous substances eg fuels, oils and greases
- Damage to jockey wheel due to misuse/lack of proper maintenance

1.12 Road sweeper/collector

Minimum requirement

Vehicle

- Current VED displayed in the cab windscreen.
- Current MOT plating certificate
- Chapter eight compliant beacons and reflective chevrons
- Mirrors/colour CCTV to satisfy one metre high at one metre distance visibility criteria
- Reversing alarm to be fitted, working and audible outside of the cab.
- On public highway – taxed and registered
- All current certificate/service documents
- Dual gulley brush and wide main brush
- Gulley sucker and hand lance
- Safe and clean access to cab
- Safe and clean access for refuelling
- Park brake not engaged warning device
- Fleet Operator Recognition Scheme (FORS) compliant –minimum silver



Operator

- The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC.
- Evidence of having signed on to the appropriate risk assessment for the task
- Demonstrable training and experience in operation of sweeper/collector
- Compliance with pre-use daily and weekly defect reporting system
- Competency assessment prior to being put to work – be familiar with machine
- Operator to be traffic management (TM) trained in mobile works
- Authorisation required to drive sweeper on public highway

Desirable

- Reversing siren to be directional and white noise
- Reversing camera
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Base colour to be conspicuous as per chapter eight requirements
- Operator to be competency assessed in dealing with spills and environmental protection
- Engine emissions compliant to EURO 4 or better
- Seat belt operation interlocked with ignition switch/warning indicator
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Plant and personnel interface
- Effect of weather on visibility and working/traffic surfaces
- Danger of flying debris during wash out of bin and filters or using hand lance
- Danger of crushing under un-propped body
- Overhead obstructions – cables, bridges, power lines, telephone lines
- Public interface – working alongside pedestrians vehicles/plant crossings
- Effect of weather visibility and working/traffic surfaces
- Limitations to all round visibility
- Hazardous substances such as fuels, oils and greases
- Appropriate waste permits if leaving site and exemption/ consent if disposing on-site
- Uncontrolled disposal/discharge of waste

1.13 Tipper – rigid or articulated

Minimum requirement

Vehicle

- Current VED and operator 'O' licence displayed in the cab windscreen.
- Current MOT plating certificate
- Mirrors and colour camera – to satisfy current Health and Safety Executive interpretation of PUWER 98 regulation 28(e), ie all round visibility and one metre high at one metre distance visibility criteria
- Flashing beacons, reflective markers and motorway/highway maintenance sticker and chevrons where required
- Reversing alarm to be fitted, working and audible outside of the cab.
- Fleet Operator Recognition Scheme (FORS) compliant- Minimum silver
- Park brake not engaged warning device
- All tippers to have automatic dust sheeting for load
- Tipper body up alarm in cab
- Automated operation for tailgate
- Tipping mechanism to be in good condition and tipping linkage must have no excessive play



- Articulated tippers not to be supplied unless prior approval granted and additional control procedure and risk assessment applied
- Inclinometer safety stops on articulated tipping body
- Seat belts must be fitted and must comply with road vehicles (construction and use) regulations requirements
- Discharge – all equipment to be intact and secure
- Fire extinguisher in cab
- Clean and safe access to cab and all areas where the operator is required to work
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Operator

- Pre-use (daily) inspection signed off
- The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification.
- Evidence of having signed on to the appropriate risk assessment for the task
- Demonstrable training and experience in operation of tipper
- Compliance with pre-use, daily/weekly defect reporting system
- Competency assessment prior to being put to work – be familiar with machine

- Do not to be tip whilst on the move or during high winds
- Loads must not be tipped downhill
- Ensure tipping is carried out on even and firm ground
- Seat belts must be worn
- Briefing of and compliance with all site speed limits

Desirable

- Seat belt operation interlocked with ignition switch/warning indicator
- Complete people exclusion area around plant and operation
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Plant and personnel interface
- High risk of overturning at speed and on inclines – refer to manufacturer's recommendations
- Effect of weather on visibility and working/traffic surfaces
- Danger of crushing in articulation area under un-propped body
- Overloading of tipper body – risk of material falling onto haul road/public highway

- Overturning whilst tipping; articulated tippers are particularly vulnerable
- Uneven distribution of load on tipper body
- Wet materials/clay are prone to stick and cause instability during tipping
- De-mounting the cab in vicinity of heavy plant, particularly dozers
- Overhead obstructions – cables, bridges, power lines, telephone lines
- Limitations to all round visibility
- Public interface – working alongside pedestrians vehicles/plant crossings
- Effect of weather visibility and working/traffic surfaces
- Hazardous substances eg fuels, oils and greases
- Coupling and uncoupling of articulated vehicle bodies FTA Guidance www.fta.co.uk/export/sites/fta/_galleries/downloads/health_and_safety/safe-coupling-guide.pdf

1.14 Concrete pump

Minimum requirement

Plant

- If truck mounted:
 - Current VED and operator 'O' licence displayed in the cab windscreen
 - Current MOT plating certificate
- Report of thorough examination within the previous 12 months
- Mirrors and camera – to satisfy current Health and Safety Executive's interpretation of PUWER 98 regulation 28(e), for example all round visibility
- Remote controls for the operator
- Safe access for maintenance activities
- Flashing amber beacon
- Reversing alarm to be fitted, working and audible outside of the cab.
- Door lock keys supplied
- Locking caps and covers
- Fire extinguisher in cab



- Handrails/edge protection on body where access required
- Fleet Operator Recognition Scheme (FORS) compliant- minimum silver
- Ball catcher fitted to discharge end during cleaning operations
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic.
 - E.g. slew restrictors, banks man remote cut out or similar
- Park brake not engaged warning device.

Driver/operator

- Pre-use (daily) Inspection signed off
 - The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification.
 - CPCS card with category A06 – truck mounted boom,
 - Appropriate licence for the class of vehicle to be operated
- (lorry mounted pumps)
- Evidence that the operator is medically fit to operate the pump
 - Evidence of having signed on to the appropriate risk assessment
 - Evidence of familiarisation training for the type of pump to be operated

Driver/operator

- Nylacast outrigger pads
- Illuminated pump control panel
- Hands free voice activated radio communications between pump operator and concrete team/second man.
- Seat belt operation interlocked with ignition switch/warning indicator
- Spill kit
- Handrails fitted around pipe storage areas at rear of vehicle
- Engine EURO 4 emissions compliant or better
- Decals detailing tyre pressures and wheel nut torque settings.

Driver/operator

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Plant and personnel interface – trapping/crushing of site operatives
- Overturning – ground capable of withstanding imposed outrigger loadings
- Effect of weather on visibility and working/traffic surfaces
- Failure of pressurised lines and use of compressed air to clean pipes
- Vibration and manual handling when using compressed air system
- Potential excessive noise

- Blockages in pipework
- Whip from flexible hoses
- Boom clash with overhead obstructions, power lines, adjacent cranes
- Hazard from concrete washout discharging
- Public interface – working alongside pedestrians vehicles/plant crossings
- Effect of weather visibility and working/traffic surfaces
- Remote control operation.
- Hazardous substances such as cement, additives, fuels, oils and greases
- Uncontrolled discharge of waste concrete

For further guidance, refer to BS8476:2007 code of practice for using concrete pumps. Also British Concrete Pumping Group Publication Safe use of Concrete pumps

www.cpa.uk.net/british-concrete-pumping-group-bpcg-publications/

1.15 Mobile crane

General

Hydraulic cranes only permitted not mechanical.

Plant

- CE Declaration of Conformity and current test certificate
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide
- Report of thorough examination within the past 12 months
- Report of thorough examination within the past six Months for all lifting accessories carried.
- All lifting accessories to be marked with SWL.
- Falling objects protective structure (FOPS) to cab where identified by risk assessment.
- Fitted and operational audible or visual overload warning system
- Over hoist limit device installed
- Operation manual including load charts to be available with the machine on site
- Mirrors/colour cctv to satisfy 1m high at 1m distance visibility criteria or crane to be escorted on site by plant marshal
- Fleet Operator Recognition Scheme (FORS) compliant- minimum silver
- Safe access for refuelling, maintenance and to any place where accessories are stored
- Flashing amber beacon
- Reversing alarm to be fitted, working and audible outside of the cab.
- Anemometer
- Door lock keys supplied
- Protective mesh must be in place to side of cab on jib side if window is opening type
- Carrier hoisting and lowering ropes minimum diameter of 8 millimetres
- Hook fitted with safety catch
- Aircraft warning lights fitted (if working within the vicinity of aerodromes)
- Slew, jib height and radius restrictors if working in the vicinity of overhead power lines, railways, adjacent live traffic, etc
- Load bearing hydraulic cylinders fitted with check valves
- Fire extinguisher in cab
- Chassis brakes to be tested under STGO requirements as per CPA TIN 104
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic. E.g. slew restrictors, banks man remote cut out or similar

Raising or lowering of personnel

- Report of thorough examination within the past six Months for the crane and all lifting accessories
- Ability to restrict the working speed of all crane functions to 0.5 m/s
- Control levers return to neutral automatically when released
- SWL of crane configuration in use is at least twice the rated capacity of the carrier
- Power lowering capacity fitted to the crane. If not, free fall capability must be locked out

Refer to BS7121 -1:2016 for further guidance

Raising or lowering of personnel

- Pre-use (daily) inspection signed off
- Lifting plan and permit to lift in place as appropriate
- CPCS card with category A60C – all duties; A – blocked duty only; B – pick and carry duties only; C All duties
- The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification.
- Valid medical certificate [See BS7121 -1:2016 and RTB B12]
- Competency assessment prior to being put to work
- Evidence of familiarisation training for type of crane to be operated
- Evidence of having signed on to the appropriate risk assessment and lift plan for the task
- Compliance with pre-use, and defect reporting system
- Engine must be turned off if approached by others and keys removed from the cab before leaving the cab unattended for any reason

Desirable

- Camera to be fitted to cathead to give operator clear view of load when blind lifting
- Fall restraint system fitted to boom for rigging super-lift
- Block stand to be provided when reeving rope into hook block whilst block is lying down
- Operator to have minimum of three years relevant operating experience
- Means for operator to monitor hoist rope tension for example RCI display, camera or mirror.
- Red, amber and green high level illumination to indicate crane is operating within safe limits
- Sectional/lightweight or circular outrigger pads if manually handled to reduce risk to personnel.
- Seat belt operation interlocked with ignition switch/warning indicator
- Crane Supervisor to have hand held anemometer to measure wind speeds
- Reversing alarm to be directional and white noise
- Engine EURO 4 emissions compliant or better
- Decals detailing tyre pressures and wheel nut torque settings.



Hazards/risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

- Access into cab/refuelling and maintenance
- Danger of crushing in slew zone
- Load path – slewing over site personnel
- Overturning if lifting duties exceeded
- Overturning due to ground failure- inadequate assessment.
- Imposed loadings on underground services
- Dropped loads
- Effect of weather visibility and working/traffic surfaces
- Reversing manoeuvres
- Plant and personnel interface
- Overhead obstructions – cables/bridges/power lines/telephone lines
- Jib clash with adjacent cranes/tall plant
- Public interface – working alongside pedestrians/vehicles
- Limitations to all-round visibility
- Manual handling outrigger pads and lifting accessories.
- Hazardous substances such as fuels, oils and greases

Also refer to Table 1 of BS 7121-3:2017 Code of practice safe use of cranes

1.16 Concrete extrusion machine

Minimum requirements

Plant

- CE Declaration of Conformity and current test certificate
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide
- Report of thorough examination within the past 12 months
- Report of thorough examination within the past six Months for all lifting accessories carried.
- All lifting accessories to be marked with SWL.
- Falling objects protective structure (FOPS) to cab where identified by risk assessment.
- Fitted and operational audible or visual overload warning system
- Over hoist limit device installed
- Operation manual including load charts to be available with the machine on site
- Mirrors/colour cctv to satisfy 1m high at 1m distance visibility criteria or crane to be escorted on site by plant marshal
- Fleet Operator Recognition Scheme (FORS) compliant- minimum silver
- Safe access for refuelling, maintenance and to any place where accessories are stored

Operator

- Evidence of appropriate training for extrusion machines
- Evidence of familiarisation training for the type of machine to be operated
- Evidence of pressure washer training
- Ensure that exclusion zone is established with cones not fewer than five metres around machine prior to movement of machine (this forms part of RAMS)
- Evidence of having signed on to the appropriate risk assessment
- Hand and skin dermatitis protection / monitoring
- Compliance with pre-use, daily / weekly defect reporting system

Desirable

- Improved lighting for night time working as given in raising the bar standard B15
- Adjusting compensation plate
- Guards on conveyors
- Training records to be developed to show course content
- Provision of good standard of welfare including showers and drying rooms engine emissions to Tier iii or better



Hazards/risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Access onto machine / refuelling and maintenance
- Plant and personnel interface
- Entrapment by inserting limbs into moving machinery
- Effect of weather on visibility and working / traffic surfaces
- Ground conditions / imposed loadings on underground services
- Transportation, loading / unloading and fitting of moulds
- Noise and vibration
- Transportation of machine including loading / unloading
- Clothing snagged on chute leading into auger
- Limitations to all round visibility
- Overhead obstructions – cables, bridges, power lines, telephone lines
- Public interface – working alongside pedestrians
vehicles / plant crossings
- Hazardous substances eg concrete, fuels, oils and greases

1.17 Mobile crushing plant

Minimum requirements

Plant

- Maintenance records to be available
- All exposed, contactable, moving parts fully guarded
- Guards to be fitted with interlocks to prevent operation with guards removed
- Isolation procedure to ensure that no person enters the hopper / crusher to clear blockages. Power must be switched off if any tools are to be used to dislodge material
- Mechanical means to remove blockage, operated remotely
- Isolation procedure with multi locking main panel arrangement to facilitate safe maintenance
- Working platforms on machine in good order and edge protection secure and intact
- Emergency stop controls to be available at various locations around machine
- Conveyor fitted with trip wires (where not fully shrouded)
- Dust suppression fitted and operational
- Automatic greasing
- Plant to be operated remotely or ensure that the ramp to loading hopper is effectively banded

- All control functions clearly marked on both machine and remote control
- Crusher to be registered with Environment Agency / Scottish Environment Protection Agency
- Provision of safe area where operator can view and monitor the performance of the feed hopper
- If loading buckets are used, ensure that they are compatible with the capacity of the crusher
- Stalled crusher procedure to ensure safe system is in place to deal with machine that has stalled under load
- Effective belt scrapers to prevent build up of material on conveyor

Operator

- CPCS card category A42 (for all persons operating the crusher)
- Trained in isolation and stalled crusher procedures
- No access to crusher when operational
- Evidence of having signed on to the appropriate risk assessment for the task
- Ensure minimum 5m physical exclusion zone around crushing area



Desirable

- Water mist dust suppression rather than directional jets
- Sizing bars on hopper feeds to eliminate oversize materials
- Metal detector installed on feed belts
- Engine emissions to Tier iii B or better
- CCTV fitted to breaker / pecker mounted on machine to deal with hopper blockages
- Fixed cameras to monitor machine operation
- Remote emergency stop controls for use by loader / loading shovel operators

Hazards / risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- People / plant interface
- Dust generation by crusher and from stockpiled material / access roadways. High silica content of some crushed materials eg concrete / bricks
- Ejected materials - general use and when magnet ejector is in use eg crushing demolition waste
- Interface with site plant and vehicles
- Falls from height whilst checking / maintaining machine
- Deterioration of loading access ramp – vehicles sliding or driving off the edge

- Whole body vibration when working on platform
- Noise output – noise induced hearing loss
- Clearance of blocked / stalled crushers
- Entrapment in moving parts of machine
- Stockpile stability, machine overturn
- Slips, trips and falls due to accumulation of waste on platforms and around machine
- Potential delays / poor access for emergency services, particularly where crushing is being undertaken in remote locations
- Stored energy from electrical, hydraulic, compressed air, mechanical sources and gravity
- Build up of material at tail drum of machine
- Hazardous Substances e.g. fuels, oils and greases

1.18 Ride on compaction roller

Minimum requirements

Plant

- Compliant with C and U regulations if being used for occasional highway use (lights, VED, registration plates front and rear)
- Chapter 8 compliant beacons and reflective chevrons if used on the public highway
- Reversing alarm to be fitted, working and audible outside of the cab.
- For rollers with enclosed cabs a 270°/360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero.
- Small machines – roll over protective structure (ROPS)
- Large machines – ROPS and falling objects protective structure (FOPS) where there is the possibility of falling objects
- Seat belts must be fitted and working
- An external green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling in public highways.
- Locking caps and covers
- Isolation switch with key
- Under seat starter / isolator pressure switch

Driver/operator

- CPCS card category A31

The operator must hold the correct category of driving licence for the vehicle / plant being utilised

- Authorisation required to drive roller on public highway
- Evidence of having signed on to the appropriate risk assessment for the task
- Compliance with pre-use daily and weekly defect reporting system
- Operator to mount and dismount machine using fixed access arrangements and always facing the machine
- Competency assessment prior to being put to work – be familiar with machine
- Seat belt must be worn

Desirable

- Tracker unit, isolation method independent of factory fitted locks, locking caps /covers to fuel and all other tanks
- Base colour to be conspicuous as per Chapter 8 requirements
- Whole body vibration monitoring
- Decals detailing tyre pressures and wheel nut torque settings.



Hazards / risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Access into cab / refuelling and maintenance
- Serious risk of overturning on inclines or when working on edges
- Plant and personnel interface
- Effect on adjacent excavations, buried services or structures from vibration
- Noise and vibration
- Public interface – working alongside pedestrians vehicles / plant crossings

1.19 Tracked dozer

Minimum requirements

Plant

- Reversing alarm to be fitted, working and audible outside of the cab.
- A 360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero in all directions.
- Flashing amber beacon
- Roll over protective structure (ROPS) to cab
- Seat belts must be fitted
- An external green light fitted to indicate when the seat belt is fastened.
- If winch fitted – associated lifting gear to have six monthly thorough examination record
- Safe and clean access to cab
- Safe and clean access for refueling

Driver/operator

- Pre-use (daily) inspection signed off
- CPCS card category A34
- Evidence of having signed on to the appropriate risk assessment for the task
- Compliance with pre-use daily and weekly defect reporting system
- Competency assessment prior to being put to work – be familiar with machine

- Do not break ground unless briefed on, received and fully understood a permit to work
- Seat belt must be worn
- Ensure door is closed when machine is operating

Desirable

- Complete exclusion zone around plant and operation
- Reversing alarm to be directional and ‘white noise’
- Tracker unit, isolation method independent of factory fitted locks, locking caps /covers to fuel and all other tanks
- engine emissions to EU Tier iii B or better
- Track adjustment particularly slackening by competent personnel only with appropriate tools and PPE
- Two way radio system to communicate with operator
- Falling objects protective structure (FOPS) to cab where risk of falling debris
- Machine under eight years since date of manufacture
- Proximity detection system
- GPS control system for blades as this will reduce the need for persons on the ground for surveying
- GPS control system to be installed at ground level to avoid working at height



Hazards / risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Access into cab / refuelling and maintenance
- Serious risk of overturning on inclines or when working on edges
- Plant and personnel interface
- Risks of towed items eg roller
- Speed of machine movement – proximity of plant marshal
- Clothes snagged on controls prior to release of servo isolator/safety handle
- Public interface – working alongside pedestrians vehicles / plant crossings
- Effect of weather visibility and working / traffic surfaces
- Reversing movements
- Underground services
- Limitations to all round visibility
- Transportation including loading / offloading
- Hazardous substances eg fuels, oils and greases
- Falls from height when erecting GPS masts

1.20 Wheeled loading shovel

Minimum requirements

Plant

- Current 12 month LOLER thorough examination
- Current six month LOLER examination of all on-board lifting equipment or handling attachments
- Lifting duty chart displayed in cab
- White reversing light and alarm to be fitted, working and audible outside of the cab.
- For use on public highway must be taxed, registered and insured
- Roll over protective structure (ROPS) and falling objects protective structure (FOPS) to cab where detailed by risk assessment
- Flashing amber beacon
- Machine lifting points/tie down points must be clearly labelled and be in good condition
- Seat belts must be fitted
- An external green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for vehicle travelling in public highways.
- Locking caps and covers
- Power isolation switch with key
- A 360° degree camera system that interlinks pictures from multiple cameras that can pick up a pedestrian from a maximum distance 5m to a minimum of zero in all directions.

- Safe and clean access to cab
- Safe and clean access for refuelling and maintenance
- Articulation lock must be fitted and operational
- Brake efficiency testing to be carried out and recorded e.g. daily user park and service brake and dynamic brake efficiency test at maximum six monthly intervals
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Driver/operator

- CPCS card category A21 together with appropriate endorsement
- The operator must hold the correct category of driving licence for the vehicle / plant being utilised and be a minimum of 18 years of age
- Authorisation to take plant onto public highway
- Evidence of having signed on to the appropriate risk assessment for the task
- Compliance with pre-use daily and weekly defect reporting system
- Competency assessment prior to being put to work – be familiar with machine
- All site speed limits must be briefed and complied with
- Do not break ground unless briefed on, received and fully understood a permit to work
- Seat belt must be worn

Desirable

- Proximity detection system
- Engine emissions to EU Tier iii B or better
- Automatic braking systems which stop the machine if an obstruction is detected
- Machine under eight years since date of manufacture
- Decals detailing tyre pressures and wheel nut torque settings.



Hazards / risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Access into cab / refuelling and maintenance
- Operator falling from machine when alighting or dismounting machine
- Serious risk of overturning on inclines, soft or uneven surfaces
- Plant and personnel interface
- Restricted visibility on larger machines or if travelling with bucket raised too high
- Trapping fingers / hand in door due to accidental closure
- Public interface – working alongside pedestrians vehicles / plant crossings
- Effect of weather visibility and working / traffic surfaces
- Reversing movements
- Hazardous substances eg fuels, oils and greases

1.21 Volumetric mixer

Minimum requirements

Plant

- Completed operator pre-use checklist
- Twin rotating amber beacons fitted to cab
- Machine by be CE marked
- Two strobe flashing beacons fitted to rear of vehicle
- Safe access for refuelling and maintenance
- Rear vehicle chevron markings and motorway / highway maintenance signage
- Reversing lights and reversing alarm audible outside of the cab.
- Seat belts must be fitted and working
- Fleet Operator Recognition Scheme (FORS) compliant- minimum Silver
- Safe access to volumetric mixer controls
- Chain inspection holes must be fitted with guards / covers
- The auger guard must be fitted with interlock device
- Isolator for auger, belt, chains and drives must incorporate a lock-out device
- Pre-use (daily) Inspection signed off
- Park brake not engaged warning device.

Driver/operator

- Evidence of appropriate training and competence assessment for machine (either by the manufacturer or in-house by an operator previously trained by the manufacturer)
- Seat belt must be worn
- The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Evidence of having signed on to the appropriate risk assessment
- Compliance with pre-use, daily / weekly defect reporting system
- Fix safety chains prior to moving off with auger in the raised (and locked) position
- Working hours to be legally compliant for HGV drivers (Working time regulations 1998, EU driving rules, GB domestic driver rules)

Desirable

- Locking caps/covers to fuel and all other tanks
- Engine emissions to EURO 4 or better
- Operator to be competency assessed in dealing with spills and environmental protection
- Seat belt operation interlocked with ignition switch/warning indicator
- Decals detailing tyre pressures and wheel nut torque settings.



Hazards / risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

- Access onto machine / refuelling and maintenance
- Plant and personnel interface
- Entrapment by inserting limbs into moving machinery
- Effect of weather on visibility and working / traffic surfaces
- Transportation of machine including loading / unloading
- Clothing snagged on chute leading into auger
- Limitations to all round visibility
- Overhead obstructions – cables, bridges, power lines, telephone lines
- Public interface – working alongside pedestrians
vehicles / plant crossings
- Hazardous substances eg concrete, fuels, oils and greases

1.22 Suction excavator

General

Lorry mounted suction / vacuum excavator, 26 or 32t GVW
c/w either hydraulic or counterbalanced suction arm.

Minimum requirements

Plant

- Must be compliant with EC Machinery Directive 2006/42/EC and supplied with a declaration of conformity
- Must have whole vehicle type approval if registered after Oct '14
- Chapter 8 compliant beacons, reflective chevrons and 'Highway/Motorway Maintenance' signage
- Compliance with C&U regulations (lights, registration plates front & rear etc.)
- Current Operator licence displayed
- Current MOT plating certificate
- Live tracking system
- Seat belts must be fitted and operational
- Mirrors (including Class V & VI)/CCTV to satisfy 1m high at 1m distance visibility criteria
- Reversing camera
- White noise reversing alarm audible outside of the cab.
- Cab steps and handles painted high viz yellow
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Isolation switch with key
- Wheel nut indicators
- All tools must be made of non-conductive material
- Suction nozzles must be made of non-conductive material only
- Emergency stops fitted front and rear
- LED working lights
- Locking doors with key
- Locking caps/covers to fuel and all other tanks
- Appropriate warning signage including noise levels
- Safe access for refuelling, maintenance and to any place where accessories stored
- Safe and clean access into cab
- Fall prevention and/or fall arrest arrangements where access to vehicle body required
- Fire extinguisher fitted in cab
- First aid kit and eye wash in cab
- Compliant with FORS Silver minimum
- Park brake not engaged warning device.
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Operator

- Complete Pre-use check sheet/e-inspection
 - Evidence of having signed on to the appropriate risk assessment for the task
 - CPCS card category A78 with additional subcategory dependent upon unit
- A: Trailer - Manual arm
B: Trailer – Semi powered arm
C: Non-LGV – Manual arm
D: Non-LGV - Semi powered arm
E: LGV - Semi powered arm
F: LGV - Fully powered arm
- Be briefed on the site Plant and Vehicle Management procedures and check for overhead obstructions and hazards
 - Compliance with Pre-use and Defect Reporting System
 - Competency assessment prior to being put to work – be familiar with machine
 - Shall report all unsafe conditions
 - Vehicle Daily inspection checklist signed off
 - Excavator Daily inspection checklist signed off
 - Must be suitably trained and competent in the use of this type of equipment

- The operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- A full exclusion zone must be established around the operation which must include the operating radius of the boom as a minimum
- A secondary person must be in the vicinity of the operation at all times who is fully trained to operate the machine in case of an emergency.
- Operator to mount and dismount machine using fixed access arrangements and always facing the machine
- Seat belt must be worn (when driving)
- Cease suction operations & turn off engine if exclusion zone is entered by others.
- If fitted with a hydrostatic drive an operator must be present in the driving seat in addition to the operator controlling the machine externally
- Keys must be removed from the ignition before leaving the cab unattended or cab doors locked if not able to do so.
- Evidence of having signed on to the appropriate risk assessment
- Working hours to be legally compliant for HGV drivers (Working time regulations 1998, EU driving rules, GB domestic driver rules)



Desirable

- Telematics system
- Independent isolation system
- Compliant with FORS
- Remote hydrostatic drive
- Engine emissions to EURO 4 or better
- CCTV/Proximity sensor system
- Locking caps/covers to fuel and all other tanks
- Seat belt operation interlocked with ignition switch/warning indicator
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/Risks

- Overhead obstructions
- Operational exclusion zone
- Effect of weather on visibility and working/traffic surfaces
- Working in live traffic
- Safe and clean access into cab
- Safe and clean access for refuelling and maintenance
- Danger of crushing under un-propped body
- Public interface – working alongside
- Disposing of waste products
- Do not operate if machine is, or appears to be damaged
- Controls should be secured so that unauthorised operation is effectively prevented when the machine is not in use
- No steel suction nozzles allowed
- At no time must anyone work or walk underneath the boom or vacuum nozzle, whether it is being operated or not
- No entry into exclusion zone unless signalled by operator
- Non-invasive excavation techniques to be used only, as per manufacturer's instructions.

1.23 Self-propelled articulated or rigid dump truck

General

Lorry mounted suction / vacuum excavator, 26 or 32t GVW
c/w either hydraulic or counterbalanced suction arm.

Minimum requirements

Plant

- Must be compliant with EC Machinery Directive 2006/42/EC and supplied with a declaration of conformity
- Supplied with lights and if used on Public Highway compliance with C&U regulations – (VED registered, working Lights, indicators, registration plate's front & rear etc.)
- Live tracking system
- Flashing amber beacon
- ROPS & FOPS Cab Structure c/w safety glass
- Cab steps and grab handles to ensure 3 points of contact is achievable and preferably high visibility
- Locking doors with keys
- Wheel nut indicators
- Seat belts must be fitted & operational
- Body Up warning system
- Articulation lock must be fitted and operational
- CCTV & mirrors to ensure 1m high at 1m distance visibility criteria.
- Audible reversing alarm audible outside of the cab.

- Mechanical prop fitted under body (Maintenance purposes only)
- Locking caps/covers to fuel and all other tanks
- Isolation switch with key
- Tipping linkage – must have no excessive play
- No tailgates unless specifically requested
- Brake test as per Manufacturers instructions
- Where access is required at height for security & maintenance purposes, suitable system must be in place to prevent falling from height
- Skip Inclinator in cab warning device >20 tonne
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
- Fire extinguisher fitted in cab
- Green light to indicate when seat belt worn, the exception to this being by risk assessment for vehicle travelling in public highways.

Operator

- Be briefed on the site specific Plant, Vehicle and People Management Plan (PVPMP) and check for overhead obstructions and hazards
- Be signed onto the appropriate Safe System of Work documentation for the task
- Complete Pre-use check sheet/e-inspection
- Comply with Pre-use and Defect Reporting System

- Have a competency assessment prior to being put to work – be familiar with machine
- Report all unsafe conditions
- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- CPCS card category A56 - Articulated Chassis, A57 - Rigid Chassis. (Both categories have weight restrictions – Refer to category codes)
- The operator must hold the correct category of driving license for the vehicle / plant being utilised along with current Driver CPC qualification
- Operator to mount and dismount machine using fixed access arrangements and always facing the machine using 3 points of contact
- Seat belt must be worn
- Engine must be turned off if approached by others and keys removed from the ignition before leaving unattended for any reason
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Do not elevate skip whilst moving
- Total train weight must not exceed the rated payload of the machine.



Operator

- Telematics system c/w geo fencing
- Load measurement device
- Hydraulic rams on engine compartment covers to prevent slamming
- CCTV/Proximity sensor system
- Safety lever will not engage until the seatbelt is connected
- Coloured seat belts improve visibility
- Decals detailing tyre pressures and wheel nut torque settings.

Hazards/Risks

- Safe and clean access into cab & for refuelling
- High risk of overturning at speed and on inclines
- Overhead obstructions
- Maintenance below skip hazardous and propping arrangement required
- Effect of weather on visibility and working/traffic surfaces
- Public interface – working alongside
- Only to be used on gradients that are within the machines capability. (Refer to manufacturers manual)
- Do not use if equipment is, or appears to be damaged
- No entry into exclusion zone unless signalled by operator
- Controls should be secured so that unauthorised operation is effectively prevented when the machine is not in use
- Not to be used for towing unless an approved tow hitch is fitted.

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