

Compact Crane

Up to 10 tonnes

A66

Learning for CPCS

OUTCOMES

Through a combination of targeted training and experience, an individual with the compact crane will be able to:

Roles and responsibilities	<ul style="list-style-type: none"> Describe the nature of the sector of industry and their role and responsibilities as a plant operator
Preparing for work	<ul style="list-style-type: none"> Name and explain the purpose of principal components, the basic construction, controls and terminology Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation Explain all relevant documentation Undertake all pre-use checks
Travelling & manoeuvring	<ul style="list-style-type: none"> Configure and set for travel Travel the crane to the work area Manoeuvre in confined spaces
Setting up for work	<ul style="list-style-type: none"> Configure the crane for lifting duties Programme / set-up Rated Capacity Indicators or Load Moment Indicators for lifting duties Identify weights and centres of gravity of loads Deploy outriggers to specification (where applicable) Explain the function use and limitations of jib extensions Explain action required for hazards, underground and overhead services
Working tasks	<ul style="list-style-type: none"> Lift various loads using the full radius and slewing or steering capabilities of the crane Accurately place loads Minimise the swinging of loads Comply with signals and instructions Move loads through machine travel (relevant endorsements only) List different types of lifting accessories compatible with compact crane use, and explain the limitations of slinging with compact cranes
Shutting down	<ul style="list-style-type: none"> Carry out shut down and securing procedures Explain loading and unloading procedures for machine transporting, procedures for lifting and/or towing

SYLLABUS

	Learning outcomes	Training content	
Roles and responsibilities	<ul style="list-style-type: none"> Describe the nature of the sector of industry and their role and responsibilities as a plant operator 	<ul style="list-style-type: none"> Industry type Customer / client needs Sector contribution Role Reporting structures Lifelong skills Working practices Social responsibilities 	<ul style="list-style-type: none"> Communication with colleagues / management / other trades Health and Safety at Work Act Environmental issues Other trades
Preparing for work	<ul style="list-style-type: none"> Name and explain the purpose of principal components, the basic construction, controls and terminology 	<ul style="list-style-type: none"> Differing types Functions and applications Power units Hydraulic systems Counterweights Chassis / steering / tyres 	<ul style="list-style-type: none"> Stability Booms / jibs Hoisting gear / ropes Safety systems Slewing arrangements Attachments ROPS / FOPS
	<ul style="list-style-type: none"> Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation 	<ul style="list-style-type: none"> Operator's Manual Duties charts Ground loading charts Machine decals Health and Safety at Work Act PPE Codes of Practice Site plans / drawings 	<ul style="list-style-type: none"> Lifting requirements and limitations Method statements Risk assessments / COSHH Inspection and reporting forms / procedures Lift plans
	<ul style="list-style-type: none"> Explain all relevant documentation 	<ul style="list-style-type: none"> Test certificates 	<ul style="list-style-type: none"> Thorough examination certificates
	<ul style="list-style-type: none"> Undertake all pre-use checks 	<ul style="list-style-type: none"> Regular and non-scheduled maintenance procedures 	<ul style="list-style-type: none"> Sequence of pre-use checks Defect reporting
Travelling & manoeuvring	<ul style="list-style-type: none"> Configure and set for travel 	<ul style="list-style-type: none"> Driving controls Attachments Security Driving position 	<ul style="list-style-type: none"> Visibility Boom / jib positioning Stowage of accessories
	<ul style="list-style-type: none"> Travel the crane to the work area 	<ul style="list-style-type: none"> Travel routes Slopes / inclines / steps Direction of travel Ground types Hazards 	<ul style="list-style-type: none"> Working area Site route Environment protection / minimise damage
	<ul style="list-style-type: none"> Manoeuvre in confined spaces 	<ul style="list-style-type: none"> Visibility Limitations of vision Protection of surface / tight turns 	<ul style="list-style-type: none"> Environmental / noise / fumes Hazards

SYLLABUS (continued)

	Learning outcomes	Training content	
Setting up for work	<ul style="list-style-type: none"> Configure the crane for lifting duties 	<ul style="list-style-type: none"> Crane positioning Required configuration (lift plan) Crane controls Environmental conditions Hazards 	<ul style="list-style-type: none"> Counterweights Levelling / inclines Site markings Stability / ground pressure Falls of rope
	<ul style="list-style-type: none"> Programme / set-up Rated Capacity Indicators or Load Moment Indicators for lifting duties 	<ul style="list-style-type: none"> Types of RCI / LMI Regulations / legislation Principles of operation Function and application of common types 	<ul style="list-style-type: none"> Lifting duties Testing, setting / programming for different duties No. of falls
	<ul style="list-style-type: none"> Identify weights and centres of gravity of loads 	<ul style="list-style-type: none"> Load types Centre of gravity Load integrity Load density and shapes 	<ul style="list-style-type: none"> Calculations Moisture contents Information sheets / load markings
	<ul style="list-style-type: none"> Deploy outriggers to specification (where applicable) 	<ul style="list-style-type: none"> Types of outriggers Support conditions Bearing pressure 	<ul style="list-style-type: none"> Packing / load spreading Footprint Inclines / uneven ground
	<ul style="list-style-type: none"> Explain the function use and limitations of jib extensions 	<ul style="list-style-type: none"> Types of extensions Functions Limitations Procedures for fitting Hazards 	<ul style="list-style-type: none"> Supporting methods Storage Testing / certification Duties / RCI set-up
	<ul style="list-style-type: none"> Explain action required for hazards, underground and overhead services 	<ul style="list-style-type: none"> Warning / identification systems Reporting procedures for damage to services 	<ul style="list-style-type: none"> Types of typical services Minimum distances and clearance
Working tasks	<ul style="list-style-type: none"> Lift various loads using the full radius and slewing or steering capabilities of the crane 	<ul style="list-style-type: none"> Duties charts Lifting accessories and slinging requirements Lift plans Lifting controls Boom deflection Signalling procedures Visibility 	<ul style="list-style-type: none"> Hazards Stability Environmental conditions Trial lifts Load stability / security Load swings Falls of rope
	<ul style="list-style-type: none"> Accurately place loads 	<ul style="list-style-type: none"> Ground conditions / hazards Visibility Signalling / following instructions 	<ul style="list-style-type: none"> Stability Load swings Out-of-sight lifts Protecting lifting accessories

continued □

SYLLABUS (continued)

	Learning outcomes	Training content	
Working tasks con	<ul style="list-style-type: none"> Minimise the swinging of loads 	<ul style="list-style-type: none"> Rope length Techniques Slew speeds 	<ul style="list-style-type: none"> Observation / anticipation Stability
	<ul style="list-style-type: none"> Comply with signals and instructions 	<ul style="list-style-type: none"> Methods and types of signals Methods of verbal instruction Multiple signalling 	<ul style="list-style-type: none"> Electronic communication / setting-up Codes of Practice Radio protocol
	<ul style="list-style-type: none"> Move loads through machine travel (relevant endorsements only) 	<ul style="list-style-type: none"> Duties charts Configuration Stability Route / ground condition Load swing 	<ul style="list-style-type: none"> Load integrity / security Visibility Hazards Regulations / legislation
	<ul style="list-style-type: none"> List different types of lifting accessories compatible with compact crane use, and explain the limitations of slinging with compact cranes 	<ul style="list-style-type: none"> Types of accessories Uses Limitation of different types 	<ul style="list-style-type: none"> Certification Pre-use checks Slinging training
Shutting down	<ul style="list-style-type: none"> Carry out shut down and securing procedures 	<ul style="list-style-type: none"> Shut down procedures Parking and positioning Security 	<ul style="list-style-type: none"> Carry out shut down and securing procedures
	<ul style="list-style-type: none"> Explain loading and unloading procedures for machine transporting, procedures for lifting and/or towing 	<ul style="list-style-type: none"> Compatibility Positioning Security Appropriate lifting accessories 	<ul style="list-style-type: none"> Lifting points Types of transporter Road Traffic Act Towing requirements Reversing procedures

NOTE: The listed training content should not be considered exhaustive and subjects may be added to reflect the individuals' working environment.

SAFETY CRITICAL

Emphasis to be placed on the following topics:

Topic	Emphasis
<ul style="list-style-type: none">Lift plans / Method statements	<ul style="list-style-type: none">Lift plan types and requirements and the need for lift planning. Adherence to the lift plan as constructed by a competent person
<ul style="list-style-type: none">Limitations of slinging using compact cranes	<ul style="list-style-type: none">Operators to be made aware of the need for defined slinger training if slinging loads in lieu of an approved slinger

DURATION / RATIOS

To allow effective learning, these training times are recommended for this category. Candidates must be profiled to establish learning needs. Durations should be of a length to ensure the learning outcomes are met.

Experience	Accumulated Hours
<ul style="list-style-type: none">Novice operators with no industry or machine experience	35
<ul style="list-style-type: none">Novice operators with industry experience but no machine experience	21
<ul style="list-style-type: none">Operators with unrelated (lifting) machine experience	14
<ul style="list-style-type: none">Operators with similar (lifting) machine experience	7

All candidates must have received the equivalent to 7 hours of site safety and induction training

To allow effective learning, the listed candidate / machine / instructor ratio is the maximum recommended for this category

- 3 candidates : 1 machine : 1 instructor

RESOURCES

Practical equipment	Theory equipment
<ul style="list-style-type: none">• Compact crane that meets current legislation• Operator's manual for the crane• Different types of loads• Lifting accessories• Sufficient area of ground suitable for placing loads at various heights and radius• Rough terrain and inclines	<ul style="list-style-type: none">• PUWER 1998 Regulations• LOLER 1998 Regulations• HSE GS6• BS 7121 (parts 1, 2 and 3)• Operator's Manual• Specifications for types of compact cranes
<p>PLUS</p> <ul style="list-style-type: none">• Suitable PPE• Risk assessment for all areas where training is occurring	<p>PLUS</p> <ul style="list-style-type: none">• Suitable room for theory training purposes• Welfare and rest facilities during training

TRAINING ATTRIBUTES

***To help candidates in learning the necessary skills for this category, it would be ideal if they possess one or more of the following:**

- Construction or related experience
- Driving licence or driving experience
- Able to calculate basic formula
- Able to record basic details
- Understand basic written words
- Have received site safety and induction training
- Possess good eye and hand co-ordination
- Have mechanical appreciation
- Medically able to operate machinery (including eyesight)

****Please note that lack of any of these attributes does not prevent anyone from being trained for this category***

TRAINING

Overview

A trained operator is an important factor in the safe and efficient use of plant and equipment. Training is defined as the accumulation of skills and knowledge, and forms an integral part of the individual's learning process. Training can be divided into two areas – Basic and Advanced.

Basic training covers theoretical and practical principles detailed in the Learning Outcomes. Basic training, wherever it occurs, should take place independent of productive work using dedicated equipment and resources.

Advanced training can take place during productive work, but following a managed supervision programme after an assessment that ensures that the Learning Outcomes are met.

Instructor requirements

Category experience

CPCS Instructors wishing to train and test on this category should have at least two and a half years' minimum experience of operating compact cranes within the last five years and pass the Instructor Skill Test.

In addition, individuals not holding a current CPCS Instructor card must attend the ten-day instructor course. Alternatively, experienced instructors may attend a three-day assessment programme. All applications for instructor status and skill tests must be made to the CPCS Department.

An alternative route exists for CPCS Instructors holding the following designated plant categories:

Category	Requirements	Compact Crane Endorsement
Mobile (A60) or Crawler Crane (A02)	Attend manufacturer's / importer's 1-day refresher course on each endorsement desired	A – Static – stabilisers B – Mobile industrial C – Luffing static D – 360 – Pick and carry
Crawler Crane (A02)	Awarded on application only	D – 360 – Pick and carry
Telescopic Handler (A17)	Attend manufacturer's / importer's 1-day refresher course on the endorsement	B – Mobile industrial

CATEGORY

Category description and types

CPCS defines a category as an item of plant or equipment used within the construction or allied industries and worked in accordance with the manufacturer's basic design. Although this category can have varying uses within industry, for CPCS training and assessment standards, the descriptions reflect basic core use. Endorsements are sub-categories that reflect the variations for this category by duties. This category has four endorsements.

To identify a machine within this category, a typical compact crane would normally have the listed features and be used within the described characteristics.

Category Features	Category Characteristics
<ul style="list-style-type: none">• Towed or self-propelled wheeled or tracked chassis containing (in most cases) power, hydraulic and electrical units• Multi-sectioned extending boom, all hydraulically operated• Up to 10 tonne lifting capacity	<ul style="list-style-type: none">• Compact in size• Able to travel in forward and reverse and change direction during travel by steering the axles, tracks or towed by prime mover• Lift loads by raising the hook• Moves and places loads using various means as per the endorsement type

Endorsement characteristics

- **Endorsement A:** Static-stabilisers – minimum of four outriggers extended, with a winch-operated metal-stranded hoist rope mounted on pulleys. Hook block suspended by hoist ropes and pulleys at the end of the boom. Places loads by using a combination of slew and linear motions within the confines of the operating radius, depth and height
- **Endorsement B:** Mobile industrial– non-slewing, able to travel with a suspended load using forward to reverse direction, travels on hard surfaces with some types having off-road capability. Places loads by travelling
- **Endorsement C:** Luffing static— trailer-mounted telescopic boom with luffing unit, hydraulically operated
- **Endorsement D:** 360 Pick and carry – Winch-operated metal-stranded hoist rope mounted on pulleys. Hook block suspended by hoist ropes and pulleys at the end of the boom. Places loads by using a combination of 360 slew and linear motions within the confines of the operating radius, depth and height. Able to travel with a suspended load using forward to reverse direction.