

1 Description

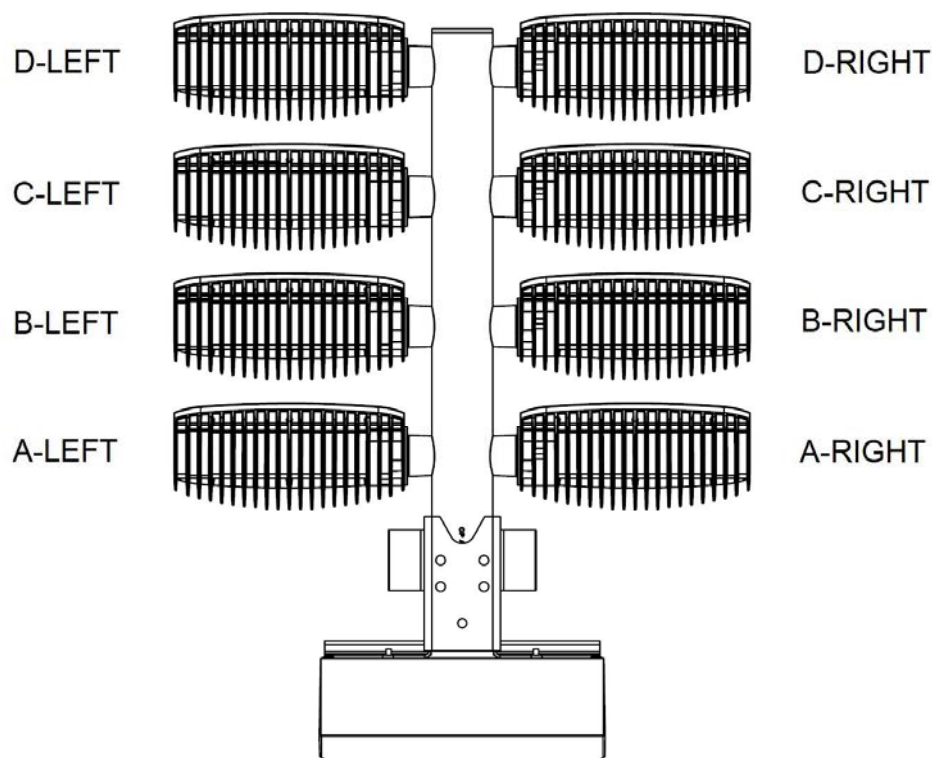
AAA-LUX issues IES files of luminaires with mounted light spill caps. With these files light designers can reduce spill light and check if the light plan meets local regulations, in term of horizontal, vertical illumination levels, or intensity.

The exact position of the light spill caps is essential for the control of the light and has to correspond with the position during IES file generation.

This paper describes the position and type of the light spill caps per type.

1.1 Light source naming convention

In order to have a naming convention of the different light sources AAA-LUX uses the following names per light source.



Products with only 4 light sources, such as WS400, are equipped with B and C light sources.
Products with only 6 light sources, such as WSE100, are equipped with A, B and C light sources.

1.2 Adjustable light spill shield

The light spill design of the luminaire is adjustable to the direction of the light nuisance. Three light spill versions (LS-version) of the luminaire are designed to control the light spill and nuisance. These are:

1. SL – Spill control on the left side of the luminaire
2. SR – Spill control on the right side of the luminaire
3. SB – Spill control on both sides of the luminaire

To configure the luminaires conform the LS – versions, AAA-LUX will delivered modular light spill shields. These can configured in the following three states:

	Front cap		Left cap		Right cap
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Forward direction (F)



Left direction (L)



Right direction (R)

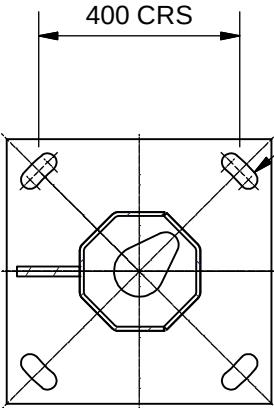
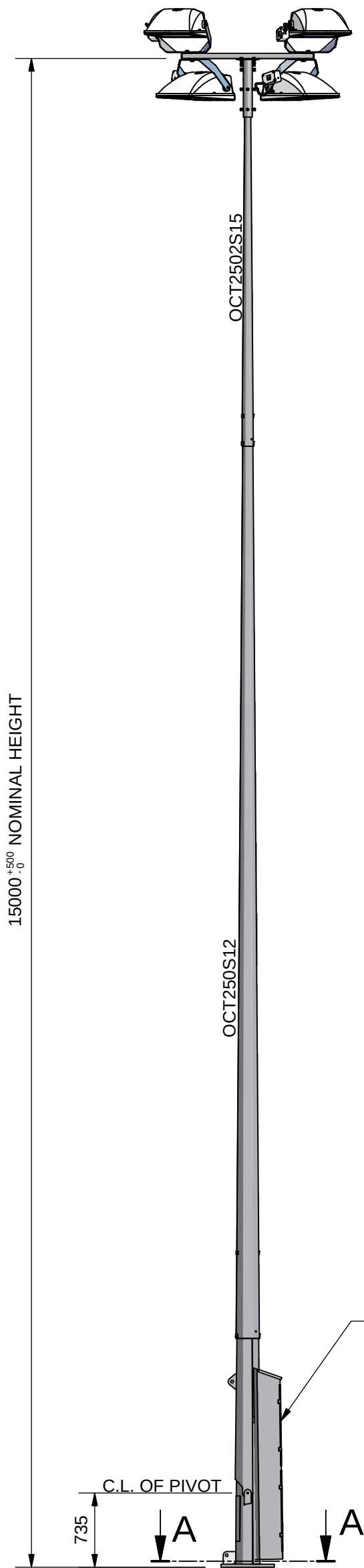


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NOTES

1. FIRST ANGLE PROJECTION.
2. DIMENSIONS SHOWN IN BRACKETS THUS (25) ARE REF. DIMENSIONS ONLY.
3. REMOVE ALL BURRS & SHARP EDGES.
4. DO NOT SCALE IF IN DOUBT ASK.
5. WELDING SYMBOLS ARE TO BS EN 24063 & BS EN 22553
6. ALL STANDARDS & SPECIFICATIONS ARE TO BE TO THE LATEST REVISIONS.
7. FILLET WELDS TO BE TO WELD PROCEDURE No. 031W.
8. MATERIAL: CHS TO BS EN 10210 GRD S275 WITH A TENSILE STRENGTH OF 430N/mm²
CHS TO BE EN 10210 GRD S355 WITH A TENSILE STRENGTH OF 490N/mm².
PLATE FROM M.S TO BSEN 10025 GRD S275.
PLATE 25mm THICK AND OVER TO BE CHARPY TEST VALUE OF 27J (MIN) AT -15°C.
9. FINISH HOT DIP GALV TO BS EN ISO 1461.
10. FOR DETAIL OF BASE SEE DRG NO RL201/97 SERIES.
11. FOUNDATION BOLTS ARE TYPE 3 TO DRG NO C201/42
- 12.FOR DETAILS OF SHAFTS SEE DRG NO RL201/41/23.
- 13.WEIGHT OF SHAFTS AS FOLLOWS
OCT2502S15 23KG
OCT250S12 116KG
BASE ASSY 236KG.

14. SHAFT OVERLAPS:-		
SHAFT NO	MIN OVERLAP	DESIGN OVERLAP
OCT2502S15 TO OCT250S12	215	636
OCT250S12 TO BASE	425	759



A-A

Copyright Strictly Reserved Abacus Lighting Ltd. © 2006	General tolerances unless stated otherwise:- 0mm-500mm----- ± 501mm-1000mm--- ± Above----- ±	Drawn A.BOOOTH	Title HL250D15 MAST	
		Checked L DYE		
		Not to scale		
Patent No. Reg. Design No.		Date 28/11/2006	Sales order No.	Client STANDARD COMPONENT
				Drg. No. HL250D15

Foundations Solid



No matter the ground condition or installation method, Abacus has the capability to design and install the necessary foundations to support the full range of column and mast system the company manufactures.

Foundations designed by Abacus meet the following criteria:

- In accordance with BS8004
- The requirements of the Institute of Lighting Engineers (ILE) Technical Report
- The type of ground on which the foundation is built
- The particular lighting column or mast chosen



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Please note

Abacus Lighting Limited will not accept responsibility for any foundations unless specifically designed by them at the clients request.

The typical foundation details are provided for guidance only and should be checked by the client before use.

Types of Subsoil

The First Step

Following table gives an indication of the allowable bearing pressure which may be expected from various types of soils. However the design of suitable foundations depends on many factors in addition to the applied loading and allowable ground bearing pressure.

If there is any doubt about the ground conditions it is recommended that a qualified civil engineer is consulted and if required we can provide foundation details to suit your particular requirements

In order to do so we would require the following basic soil information obtained from a site investigation undertaken by yourselves or, if requested, our civil engineer.

1. Soil Classification
2. Assessment of allowable bearing pressure
3. Chemical analysis of the soil
4. Water table level (if close to the surface)
5. Chemical analysis of ground water (if close to the surface)

Types of Subsoil

Types of Subsoil	Condition of subsoil	Field test applicable	Approximate allowance bearing pressure kN/m ²
Rock	Not inferior to sandstone, limestone or firm chalk	Requires at least a pneumatic or other mechanically operated pick for excavation	1000
Gravel, Sand	Compact	Requires pick for excavation. Wooden peg 50mm square cross section hard to drive beyond 150mm	Dense to very dense 150-400 Loose to medium dense 50-250
Clay, Sandy Clay	Firm	Can be moulded by substantial pressure with the fingers and can be excavated with graft or spade	50-100
Sand*, Silty Sand*	Loose	Can be excavated with a spade. Wooden peg 50mm square in cross section can be easily driven	<75
Clayey Sand*			
Silt*, Clay*, Sandy Clay*	Soft	Fairly easily moulded in the fingers and readily excavated	<75
Silty Clay*			
Silt*, Clay*, Sandy Clay*	Very soft	Natural sample in winter conditions exudes between fingers when squeezed in fist	<75
Silty Clay*			

These values are provided for guidance only. if any doubt exists a qualified civil engineer should be consulted.

*Foundations on these soils require assessment and design by a qualified civil engineer.

Cable Trenching & Root Mounting

Cable trenches

Cables buried directly into the ground shall be marked by cable covers or a suitable marking tape.

Buried cables, conduits and ducts shall be at a sufficient depth to avoid being damaged by any reasonably foreseeable disturbance of the ground.

Cables should be surrounded by sand.

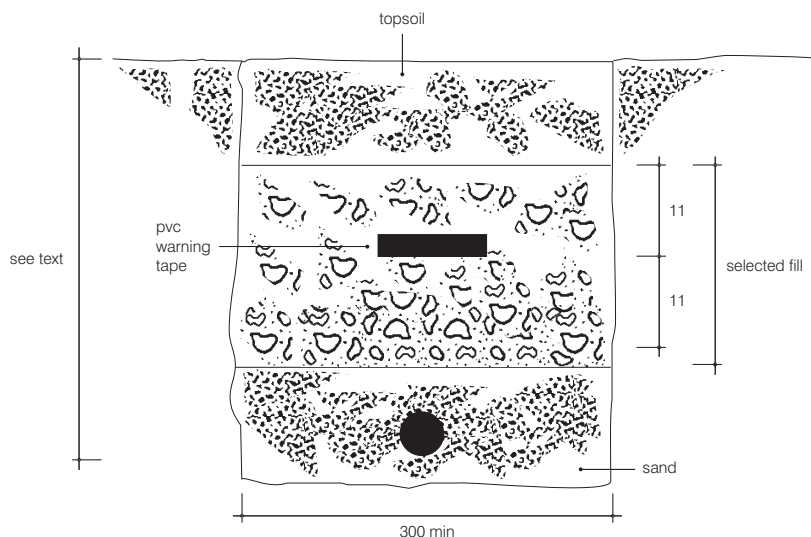


FIGURE 1 Typical Cable Trench

Root Mounting

Columns are supplied for root mounting with a root length (Z, figure 2) applicable to the height of the particular column.

For most applications, particularly on medium sized columns having large overturning moments it is recommended that the root is inserted into a prepared foundation (figure 2).

However, for smaller columns, where the ground conditions are suitable, a prepared foundation is not always necessary. All that is required is a suitably sized excavated hole in undisturbed ground which is filled with concrete after erection of the column (figure 3).

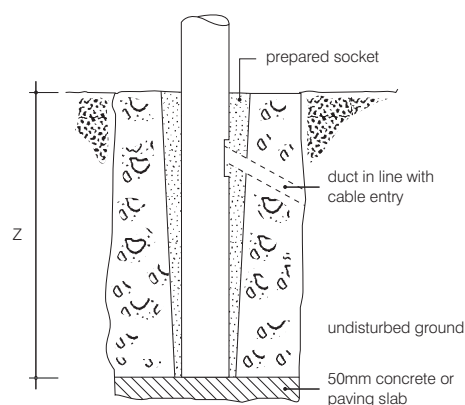


FIGURE 2 Prepared Root Foundations

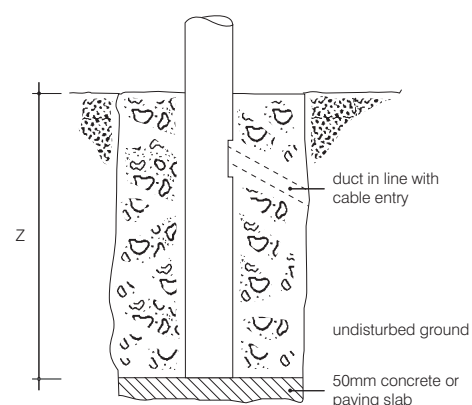


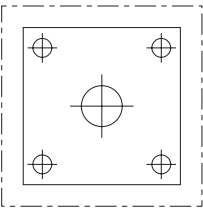
FIGURE 3 Unprepared Root Foundations

Relates to O.T.M./Ground Conditions. Refer to Lighting Column Technical Data. Sheet - available on request.

Flangeplate Mounting Standard

Holding Down Bolt Projection & Final Torque Values

Bolt Size & Grade	Projection (mm)	Torque (Nm)
M16*500 Long Grade 4.6	90	25
M20*500 Long Grade 4.6	90	50
M24*600 Long Grade 4.6	100	160
M30*800 Long Grade 4.6	120	310
M24*880 Long Grade 8.8	130	425
M30*1220 Long Grade 8.8	140	850
M36*1200 Long Grade 8.8	180	1450
M36*1350 Long Grade 8.8	180	1450
M36*1590 Long Grade 8.8	180	1450
M42*1700 Long Grade 8.8	210	2350
M48*1870 Long Grade 8.8	210	3500

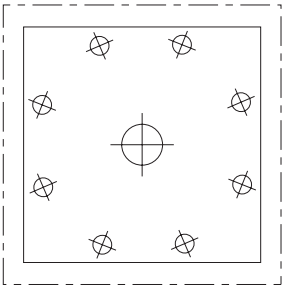


4 Bolt Configuration

Typically used for:
Standard Lighting Columns

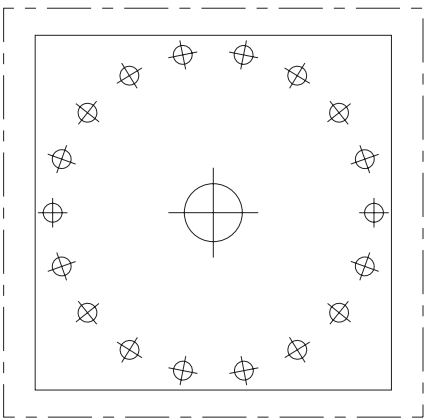
Spring & Hydraulic Raising and
Lowering Columns

HL250/HL330 Base Hinged
Raising & Lowering Mast



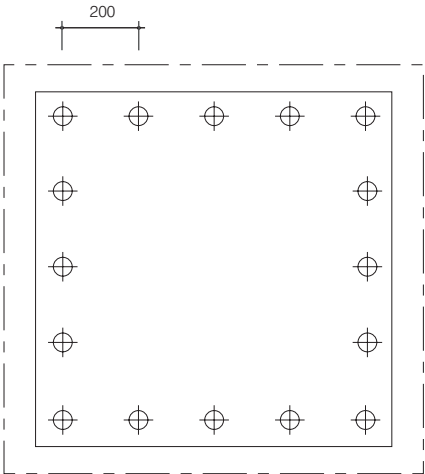
8 Bolt Configuration

Typically used for GL400/GL520 Base
Hinged Raising & Lowering Mast



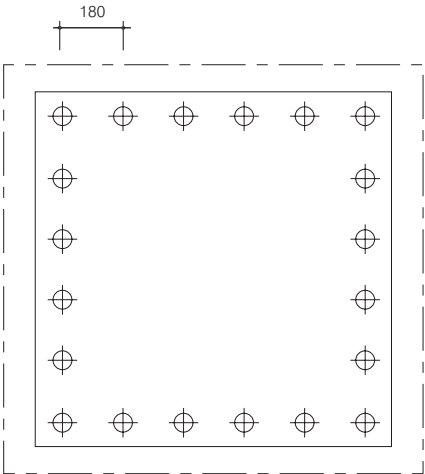
18 Bolt Configuration

Typically used for External Access Masts



16 Bolt Configuration

Typically used for the GL620 Base Hinged Raising and
Lowering Mast



20 Bolt Configuration

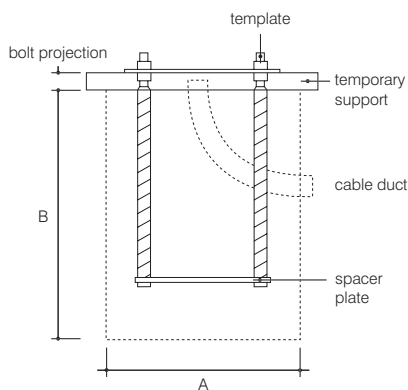
Typically used for the GL720/GL800 Base Hinged Raising
and Lowering Masts

Flangeplate Mounting

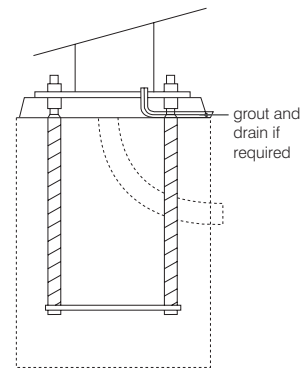
Passive/Non Passive Concrete

To accommodate different types of subsoil and ground conditions Abacus offer passive and non passive concrete foundations for flange plate mounting of columns and masts.

Typical Section through Foundation

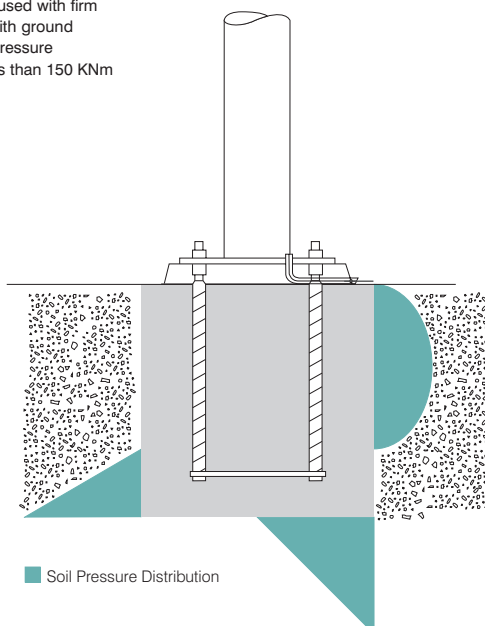


Typical Foundation with Column/Mast in position



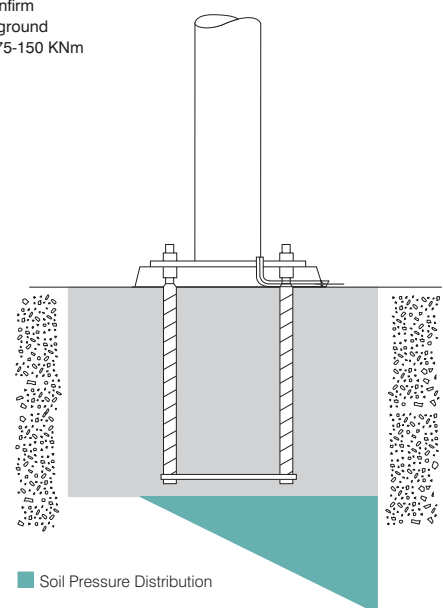
Passive Concrete

Typically used with firm ground with ground bearing pressure of not less than 150 kN/m²



Non-Passive Concrete

Typically used with unfirm or poor subsoil with ground bearing pressure of 75-150 kN/m²



Passive Concrete Foundation Standard Sizes

Foundation	O.T.M (KNm)	Bearing Pressure (KNm)	A Width (mm)	B Depth (mm)
3P150	3	150	650	750
4P150	4	150	700	800
5P150	5	150	750	800
6P150	6	150	750	900
8P150	8	150	850	950
10P150	10	150	900	950
15P150	15	150	950	1100
20P150	20	150	1050	1200
30P150	30	150	1200	1250
40P150	40	150	1250	1300
50P150	50	150	1350	1400
75P150	75	150	1450	1600
100P150	100	150	1600	1700
150P150	150	150	1800	1850
200P150	200	150	1950	2000
300P150	300	150	2250	2150
400P150	400	150	2450	2250
500P150	500	150	2700	2300
750P150	750	150	3050	2600

Ground Bearing Pressures below 150 Kn/m² are not applicable

Non-Passive Concrete Foundation Standard Sizes

Foundation	O.T.M (KNm)	Bearing Pressure (KNm)	A Width (mm)	B Depth (mm)
3M75	3	75	880	590
3M100	3	100	880	590
3M150	3	150	880	590
4M75	4	75	950	625
4M100	4	100	950	625
4M150	4	150	950	625
5M75	5	75	1050	675
5M100	5	100	1050	675
5M150	5	150	1050	675
6M75	6	75	1100	700
6M100	6	100	1100	700
6M150	6	150	1100	700
8M75	8	75	1150	725
8M100	8	100	1150	725
8M150	8	150	1150	725
10M75	10	75	1250	775
10M100	10	100	1250	775
10M150	10	150	1250	775
15M75	15	75	1400	850
15M100	15	100	1350	825
15M150	15	150	1350	825
20M75	20	75	1500	900
20M100	20	100	1500	900
20M150	20	150	1500	900
30M75	30	75	1700	1000
30M100	30	100	1700	1000
30M150	30	150	1700	1000
40M75	40	75	1900	1100
40M100	40	100	1800	1050
40M150	40	150	1800	1050
50M75	50	75	2100	1200
50M100	50	100	1900	1100
50M150	50	150	1900	1100
75M75	75	75	2400	1350
75M100	75	100	2200	1250
75M150	75	150	2200	1250
100M75	100	75	2650	1475
100M100	100	100	2400	1350
100M150	100	150	2300	1300
150M75	150	75	3200	1750
150M100	150	100	2700	1650
150M150	150	150	2500	1400
200M75	200	75	3900	2100
200M100	200	100	3000	1650
200M150	200	150	2700	1500
300M100	300	100	3500	1900
300M150	300	150	3100	1700
400M100	400	100	3900	2100
400M150	400	150	3400	1850
500M100	500	100	4500	2400
500M150	500	150	3600	1950
750M150	750	150	4100	2200

Quality Assurance

Reflecting the company's commitment to high quality, a sustainable environment and its people, Abacus has achieved certification to the latest Quality, Environmental and Investor in People standards.

Investing in Quality

In 1988 the company achieved certification through Lloyd's Register for its Quality Management System to BS5750 Part 1, covering the full range of products and services offered. During 1994 Abacus were successful in attaining the updated standards to BS EN ISO9001, EN ISO9001 and ISO9001. In 2001, Abacus successfully achieved certification to the third edition ISO9001:2000.

Working towards a sustainable environment

In 2002, Abacus Lighting were awarded accreditation as an ISO14001 registered company, reflecting its commitment to protecting the environment. The ISO14001 standard specifies requirements for establishing an environmental policy and a management system to minimize the impact the company's operations has on the environment.

Investing in People

Abacus understands the importance of training its people to achieve their true potential. This was formally recognised in the year 2000 when the company was awarded the accreditation of the Investor in People standard. Company training focuses on striving for customer excellence throughout the organisation, ensuring our people focus on the integral element of our success, our customer.

A professional member of the lighting industry

Abacus is a corporate member of the major institutions and trade associations allied to the lighting industry. By taking an active role, Abacus is able to contribute to shaping the industry and raising standards, ensuring quality assured products and providing a safe working environment for all involved, from manufacturing through to installation.



BS EN ISO 9001:2000



BS EN ISO 14001:2004



INVESTOR IN PEOPLE



APPROVED CONTRACTOR



COUNTERBALANCE OPERATING INSTRUCTIONS

COUNTERBALANCE REF: Raise & Lower Hydraulic (RLH5)

WE STRONGLY RECOMMEND THAT THESE INSTRUCTIONS AND THE HEALTH & SAFETY REQUIREMENTS SHEET SUPPLIED WITH THE UNIT ARE READ CAREFULLY BEFORE ATTEMPTING TO OPERATE THIS EQUIPMENT.

NOTE THAT THE INSTRUCTIONS THAT FOLLOW ARE APPLICABLE TO THE OPERATION OF THIS UNIT WITH HL250 HILUME TYPE COLUMNS ONLY.

GENERAL

The unit consists of a 76mm bore, double acting hydraulic ram mounted on a trolley, which also houses the electric pump unit. The counterbalance is individually colour coded **brown**. The pump unit is electrically operated from a 240v supply. The pressure relief valve is set at 170bar (2500psi), giving the unit a rating of 46260Nm. For pre 2003 units the relief valve setting is 120 bar (1750psi) giving the unit a rating of 33000Nm. **In the event of a hose failure a flow control valve, integral with the ram ensures that the column lowers at a safe rate.**

The rating refers to the maximum bending moment about the hinge of the column. For details of the full range of **safe working loads** refer to the manufacturers column data. **Note that the safe working load for a counterbalance unit varies with column height.**



RLH5 COUNTERBALANCE
(Weight 108kg)

The unit is supplied ex works with **Hydran 38F SAE 10 mineral oil** (or equivalent) in the tank. **For export the unit is supplied empty and the tank must be filled with oil before use.** The correct oil level is 30mm below the upper face of the filler port with the tank horizontal. Note that if this level is exceeded with the ram extended, oil will be ejected during operation of the equipment. The pump incorporates a breather unit/filler port in the top of the tank and when not in use the counterbalance should be stored with the tank in an upright position to avoid leakage.

MOVING THE UNIT

The upper ram anchor pin is lengthened to serve as a handle. To move the unit, pull the ram backwards so that the weight bears on the axle of the chassis and with the weight being balanced by the pump unit wheel the unit in the normal manner. **The unit must never be moved with the ram in the extended position.**

Please note that the Hilume column referred to in these instructions is an HL250 type. If the Hilume column is of the obsolete CAM or DMD type please refer to the appropriate instructions for that unit.

PRELIMINARY CHECKS BEFORE USE

1. Examine the trolley framework for damage. Check that the wheels are operating and retained in position.
2. Examine the ram in particular the area around the seals for signs of damage and leakage of oil.
3. Check the oil level is to the centre of the level gauge with the tank top horizontal and the ram closed.
4. Check the hydraulic hoses for damage and loose connections.
5. Check the electrical flex for damage or loose connections. Connect to a 240v supply and switch on.
6. Check the function of the pump and control valve by extending the ram for a short distance i.e. 100mm. Retract the ram at the same time observe the pressure gauge. During extension it should be 0 to 300psi and 1000psi minimum during retraction. As the ram reaches fully closed the reading should build up to the relief valve pressure of 2500psi.
7. Check that the upper and lower ram anchor pins are the correct diameter and colour code as follows:-

RLH5 – 25mm dia. Coded **brown**

IF ANY OF THESE CHECKS ARE FAILED THE COUNTERBALANCE MUST NOT BE USED.

FITTING THE RAM TO THE COLUMN

(Refer to the illustrations in the text)

Wheel the unit up to the column and park it conveniently to one side. Remove the column door and connect the unit to the electrical supply in the base. Remove the upper and lower ram anchor pins and place next to the base of the column. Lift the ram from the trolley and place between the gussets at the base of the column.

CAUTIONARY NOTE: THE RAM WEIGHS 39Kg. ENSURE THE CORRECT MANUAL HANDLING TECHNIQUES ARE USED AT ALL TIMES WHEN LIFTING OR MOVING THE RAM. ENSURE THAT THE VALVE AND PIPEWORK FACE AWAY FROM THE COLUMN. FAILURE TO DO THIS WILL CAUSE SERIOUS DAMAGE TO BOTH THE COLUMN AND RAM.

Fit the lower ram anchor pin through the ram and gusset and insert the retaining pin. Support the ram against the column. Operate the control valve and by pumping the handle extend the ram until it is possible to insert the upper end of the ram between the two gussets and secure with the upper ram anchor pin. Fit the retaining clips to the upper and lower ram anchor pins.

LOWERING THE COLUMN

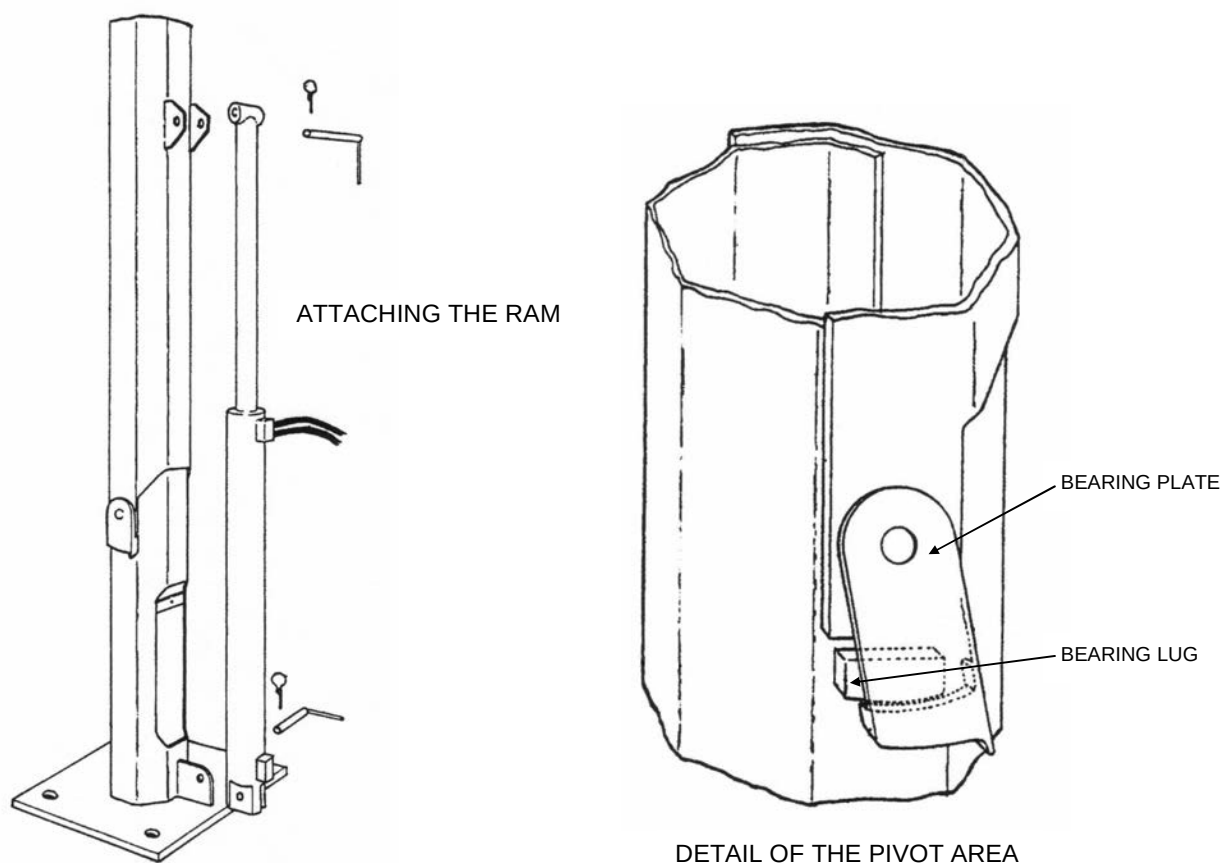
(Refer to the illustrations in the text).

DO NOT ATTEMPT TO LOWER THE COLUMN IF THE WIND SPEED IS 30KPH (18MPH) OR GREATER.

If the bearing plate has a locking screw, withdraw it using the door key sufficient distance to allow the bearing plate to rotate. Turn the bearing plate through 90° so that the projection on the inside of the bearing plate clears the fixed lug. The relative positions of the pivot bearing plates for the various stages of the lowering and raising operation are shown in the operating sequence diagrams on sheet **7.143** and reference should be made to this.

Operate the control valve to extend the hydraulic ram. As the ram extends, the hinged part of the column will be observed lifting relative to the fixed part of the base. Continue to lift until the pivot reaches the limit of its travel. Rotate the bearing plate towards the bearing lug as far as it will go. The bearing lug and projection inside the bearing plate should touch. A gap of 10mm should be visible between the lid and base at 'X' as illustrated on sheet **7.143**. Hold the bearing plate in position and retract the ram, maintaining a steady pressure on the control valve. There may be some slight vibration of the column shaft at commencement of lowering as the various pivot and anchor pin clearances reverse, but this will cease very quickly to give a constant smooth descent.

Once a smooth descent is underway the control valve may be released to stop the column in any desired position. When the column reaches a horizontal position, place a suitable support below the shaft at approximately 2/3 of the mast height and at an overlap joint.



RAISING THE COLUMN

Operate the control valve such that the ram extends and the hinged part of the shaft is raised into a vertical position.

ENSURE AS THE RAISING PROGRESSES THAT THE FLEXIBLE CONDUITS DO NOT GET TRAPPED BETWEEN THE FIXED AND HINGED PARTS OF THE COLUMN.

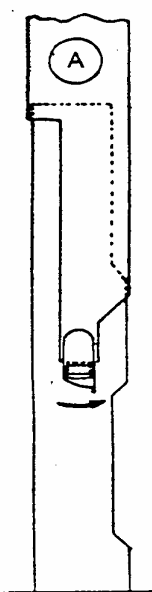
Fully extend the ram and wait for any shaft oscillations to decay. Swing the bearing plate through 90° away from the bearing lug and reverse the control valve to retract the ram. Check during retraction that the hinged part of the shaft fully overlaps the fixed part of the base. A warning label indicates the correct amount of overlap.

When the shaft has overlapped to the correct amount the ram anchor pins will loosen. Rotate the bearing plate towards the bearing lug. The projection on the inside of the bearing plate should locate under the bearing lug. If the bearing plate has a locking screw, align it with the hole and tighten.

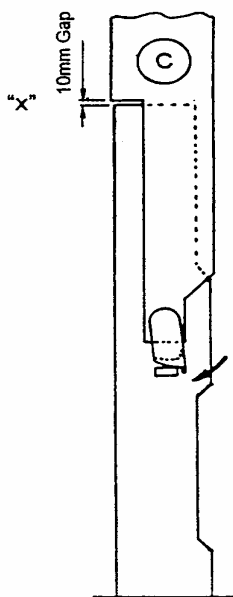
REMOVING THE RAM

CHECK THAT THE COLUMN IS PROPERLY DOCKED AND THE BEARING PLATES ARE IN THEIR LOCKED POSITION.

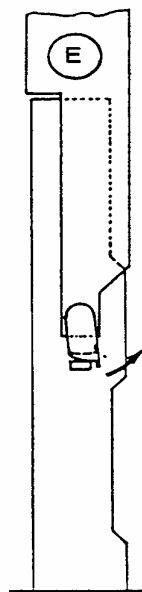
Remove the upper ram anchor pin and ease the ram out from between the gussets. Refit the anchor pin and retaining clip. Support the ram against the column and operate the control valve until the ram is fully closed. Remove the retaining clip and lower ram anchor pin and place conveniently near the pump unit. Remove the ram from the column and locate it on the gusset welded to the trolley unit. Support the ram and fit the lower anchor pin through the ram and gusset. Secure with the retaining pin. Lean the ram forward into its storage position. Disconnect from the electrical supply and stow the cable. Refit the column door.

LOWERING AND RAISING SEQUENCE FOR HL250 COLUMNS

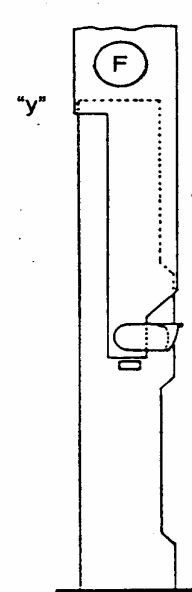
Loosen locking screw if fitted so that the bearing plate can rotate through 90° and.....



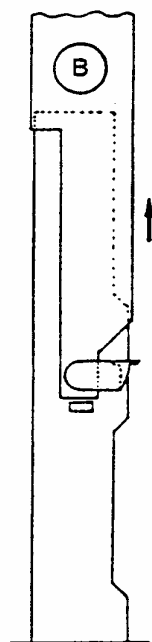
Turn the bearing plate approximately 90° and retract the ram to.....



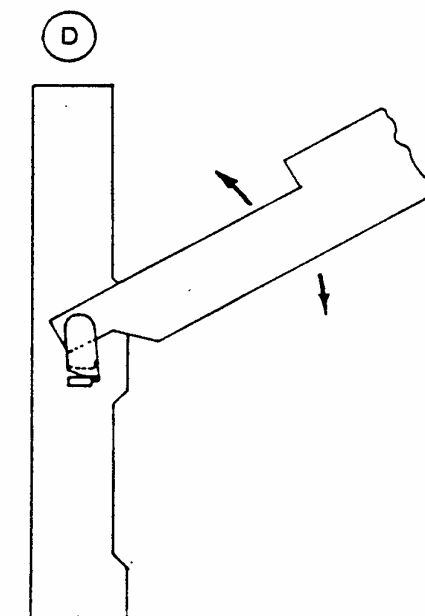
Until the column is vertical. Turn the bearing plate through 90° and.....



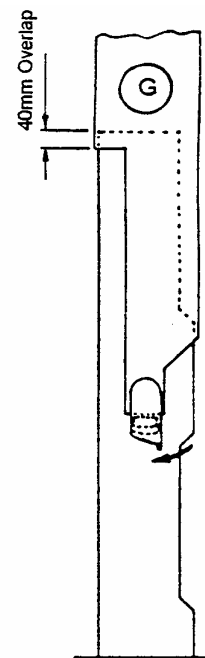
Retract the ram by 50mm approximately, checking that the shaft overlaps correctly at 'Y'.



Extend the ram by 50mm approximately.



Start the column lowering. To raise, extend the ram...



Turn the bearing plate 90° and secure with the locking screw if fitted.

FOR FURTHER ADVICE CONTACT THE ABACUS TECHNICAL DEPARTMENT

COUNTERBALANCE ROUTINE MAINTENANCE

COUNTERBALANCE REF: Raise & Lower Hydraulic (RLH5)

WE STRONGLY RECOMMEND THAT THESE INSTRUCTIONS ARE READ CAREFULLY BEFORE ATTEMPTING TO CARRY OUT MAINTENANCE ON THIS EQUIPMENT. PARTICULAR ATTENTION MUST BE PAID TO THE COUNTERBALANCE OPERATING INSTRUCTIONS AND ESSENTIAL HEALTH AND SAFETY REQUIREMENTS APPLICABLE TO THIS UNIT.

GENERAL

This counterbalance unit is designed for use with HL250 Hilume floodlighting columns. The unit consists of a 76mm bore, double acting hydraulic ram mounted on a trolley, which also houses the pump unit. The pump unit is electrically operated via a 0.75Kw motor normally from a 240v supply. A 0.37Kw motor is used for pre 2003 units.

The pressure relief valve is set at 170bar (2500psi), giving the unit a rating of 46260Nm. For pre 2003 units the relief valve setting is 120 bar (1750psi) giving the unit a rating of 33000Nm. **In the event of a hose failure a flow control valve, integral with the ram ensures that the column lowers at a safe rate.**

The hydraulic ram is colour coded **Brown**, and can be identified as such by checking the upper end of the piston rod and the upper and lower ram anchor pins.

The rating refers to the maximum bending moment about the hinge of the column. For details of the full range of **safe working loads** refer to the manufacturers column data. **Note that the safe working load for a counterbalance unit varies with column height.**



RLH5 COUNTERBALANCE
(Weight 108kg)

The base of the ram is fitted with a flow control valve which will allow the mast to lower at a fixed rate in the event of a major hydraulic failure such as a severed hose. The valve is of the fixed orifice type and is not adjustable.

The hydraulic circuit is fitted with 3 filters. A suction strainer is fitted inside the reservoir, a return line filter is located below the tank and a micro strainer is located inside the flow control valve poppet. All filters are adequate for the life of this unit and will only need replacing if contaminated oil has been used to refill the unit.

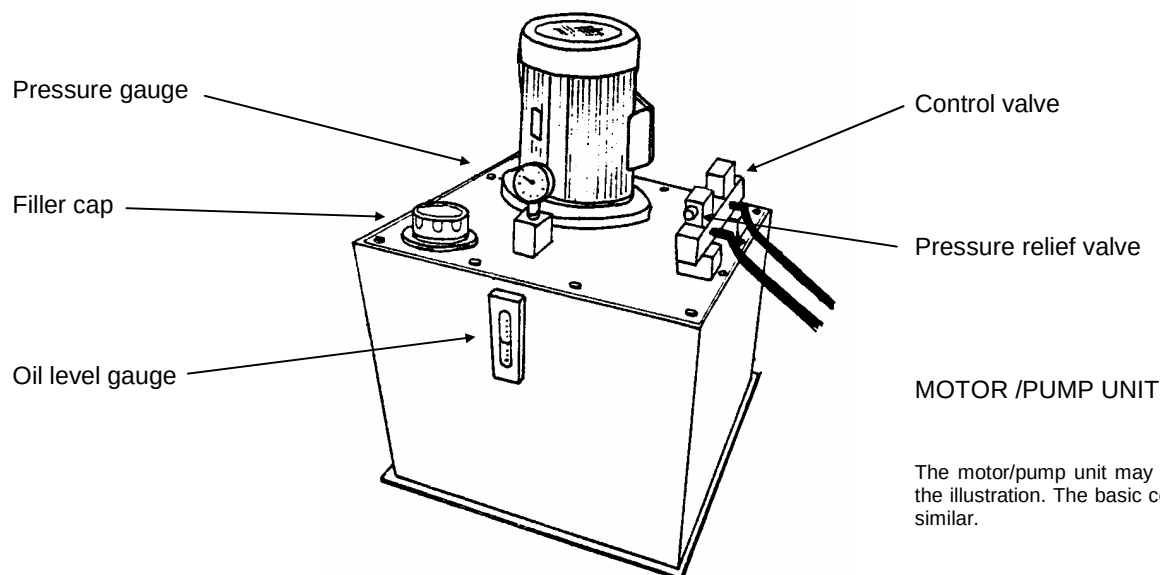
ROUTINE MAINTENANCE

Due to its irregular usage it is difficult to specify a periodic maintenance schedule. However we recommend that the following simple checks be carried out at **12 monthly** intervals and any defective items replaced.

Check the oil level in the tank. This should be carried out with the tank as near horizontal as possible and with the rams fully closed. The oil level should be to the centre of the clear indicator panel on the tank side or to the level mark if one is provided. Tank capacity is 15 litres and should be topped up with **Hydran 38F SAE 10 mineral oil** (or equivalent). **Note that if the oil level is exceeded with the rams extended, oil may be expelled from the filler cap during lowering of the column.**

Examine the hydraulic hoses that link the rams to the pump unit control block and ensure that the couplings and connections are firm, intact and free from leaks.

Check that the electrical flex and plug for damage and then connect it to the mains, ensure the same voltage is being used i.e. 110v, 240v or 415v. Check that the electric motor is running by operating the control valve to extend the ram a short distance. Operate the control lever to retract the ram. Both movements up and down should be smooth and jerk free.



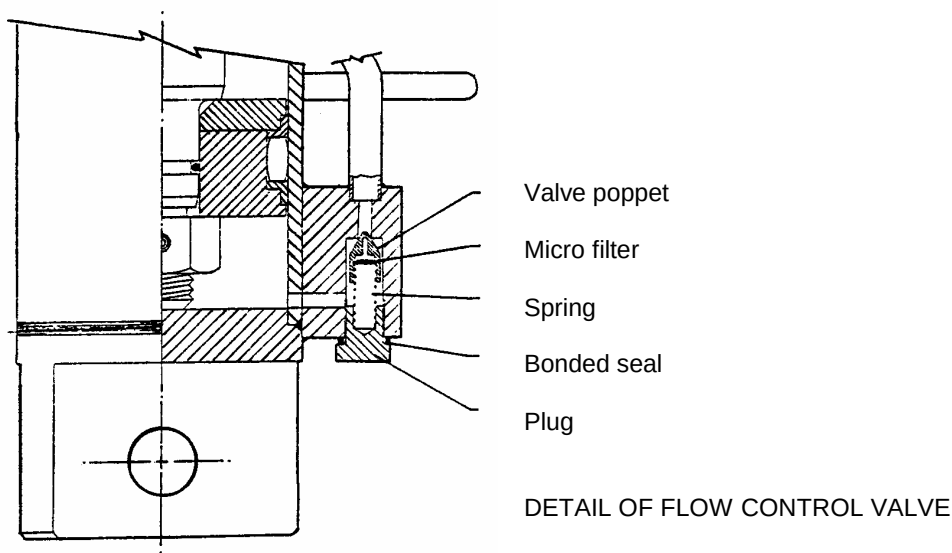
Before attempting any work on the flow control valve ensure the ram is fully closed and supported in the vertical position, with the flow control valve uppermost. Switch off the electric motor and operate the flow control valve back and forth several times to depressurise the hydraulic circuit. Clean the area around the large plug. Removing it will expose the spring and valve poppet. Check that the micro filter inside the valve poppet is present and remove. Clean and dry all components and check that the orifice (0.7mm bore) is unobstructed. Check that the filter has not collapsed due to heavy contamination. Carefully reassemble the components paying particular attention to cleanliness. Replace the bonded seal and plug and tighten securely. **CAUTIONARY NOTE: THE RAM WEIGHS 39Kg. ENSURE THE CORRECT MANUAL HANDLING TECHNIQUES ARE USED AT ALL TIMES WHEN LIFTING OR MOVING THE RAM.**

The hydraulic ram can, if necessary be bled to remove any air that has entered the system. To do this requires the ram to be removed from the trolley and laid horizontally with the flow control valve blocks uppermost. (See cautionary note above). The procedure is as follows. First, slightly raise the top end of the ram and fully extend the piston. Second, slightly raise the flow control valve end of the rams and fully close. The ram can then be returned to the trolley.

Check that the flow control valve is functioning correctly. This is accomplished by extending the ram about 300mm then retracting it. During retraction the reading on the pressure gauge should not be less than 1000psi. The pressure will increase to the relief valve pressure of 2500psi (1750psi for pre 2003 units) as the end of the stroke is reached.

ROUTINE MAINTENANCE

Ensure that the upper and lower ram anchor pins are present and undamaged. The pins are colour coded **Brown** and are 25mm diameter.



Check that the relief valve pressure is correctly set at $2500 \pm 100\text{psi}$ or for pre 2003 units $1750 \pm 100\text{psi}$, by operating the control valve to retract the rams when they are already fully closed. The pressure should rise quickly and stabilise at the correct value. If the reading is incorrect adjust the pressure relief valve setting as follows:-

The relief valve is located below or adjacent to the control valve. Some valves are fitted with a screwed cap which must be removed to allow the adjustment to be made. Hold the centre adjusting screw with an Allen key and slacken the locknut. With the ram fully closed, operate the control valve such that the relief valve pressure can be read on the pressure gauge. Turn the Allen key clockwise to increase the relief valve pressure and anticlockwise to decrease it. When the correct reading has been obtained, tighten the locknut and recheck the pressure setting. Refit the screwed cap if provided.

Examine the hydraulic ram, in particular the area around the seal, for any signs of damage and oil leakage. Fully extend the piston rod and check the polished surface for signs of bruising and corrosion pitting. Either will cause failure of the gland seals.

Check that the wheels on the unit are operational and retained in position. The tyres should be fully inflated to a maximum pressure of 32psi.

DO NOT USE THE UNIT UNLESS ALL THESE CHECKS ARE SATISFACTORY.

IN THE EVENT OF DAMAGE TO COMPONENTS OR FOR FURTHER ADVICE CONTACT THE ABACUS TECHNICAL DEPARTMENT AT THE ADDRESS BELOW.

Abacus Lighting Information Sheet
Counterbalance Oil Tank Capacities



Counterbalance Reference	Tank Capacity	Hydraulic Mineral Oil
RLH168	1 Lt	Fuchs Agrifarm Universal HV 46
RLH1M	3.5 Lt	Fuchs Agrifarm Universal HV 46
RLH2M	5 Lt	Fuchs Agrifarm Universal HV 46
RLH5	17 Lt	Fuchs Agrifarm Universal HV 46
RLH7	14 Lt	Fuchs Agrifarm Universal HV 46
RLH11	23 Lt	Fuchs Agrifarm Universal HV 46
RLH12	23 Lt	Fuchs Agrifarm Universal HV 46
RLH13	50 Lt	Fuchs Agrifarm Universal HV 46
RLH14/RLT	110 Lt	Fuchs Agrifarm Universal HV 46
RLH15	150 Lt	Fuchs Agrifarm Universal HV 46
RLH16	150 Lt	Fuchs Agrifarm Universal HV 46

Alternative Equivalent Mineral Oils Can Be Used
Examples Listed Below:

Ovoline 8000 Range - 8046
Shell Tellus 37 SAE 10
Fuchs Agrifarm Universal HV 46

Note: All Counterbalances for export are drained prior to despatch and require the hydraulic oil sourcing locally (refer to the table above for the oil quantity required).

All Counterbalances for the U.K. are despatched with the correct hydraulic oil and amount in accordance to the counterbalance reference.

EC Declaration of Conformity

In accordance with EN ISO 17050-1:2004

We Abacus lighting limited
of Oddicroft lane
Sutton-in-Ashfield
Nottinghamshire
NG15 7FT
Tel: (+44) 01623 511111. Fax: (+44) 01623 552133.
Web: www.abacuslighting.com

In accordance with the following directive(s)

2006/42/EC The Machinery Directive
2004/108/EC The Electromagnetic Compatibility Directive
2006/95/EC The Low Voltage Directive

Hereby declare that;

Equipment: Counterbalance unit(s)
Model No.(s): RLH5, RLH11, RLH12, RLH12/110 RLH13, RLH14/RLT,
RLH15, RLH16

Is in conformity with the applicable requirements of the following documents:

Ref No.	Title	Edition/date
BS EN 982:1996	Safety of machinery. Safety requirements for fluid power systems and their components. Hydraulics	1996
BS EN ISO 12100-1:2003	Safety of machinery. Basic concepts, general principles for design. Basic terminology, methodology	2003
BS EN ISO 12100-2:2003	Safety of machinery. Basic concepts, general principles for design. Technical principles	2003
BS EN ISO 14121-1:2007	Safety of machinery. Risk assessment. Principles	2007
BS EN 60204-1:2006	Safety of machinery. Electrical equipment of machines. General requirements	2006

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives.

Signed by:.....

Name: Philip Nichols.
Position: Senior Project Engineer
Done at: Abacus lighting limited.
On: 15th December 2008.

Product INFORMATION

FUCHS (UK) PLC.
New Century Street
Hanley
GB-Stoke-on-Trent,
Staffordshire, ST1 5HU



RENOLIN CL RANGE

(Also known as RENOLIN B OILS - outside the UK)

High-Quality AW Hydraulic & Lubricating Oils

Description

The RENOLIN CL series is based on selected mineral base oils. High-quality additives improve the ageing and oxidation stability. They also guarantee excellent corrosion protection properties (steel and iron materials). Synergistically acting copper deactivators protect copper / yellow metal materials. The selected Anti-Wear- / mild EP-additives based on zincdialkyldithiophosphates protect hydraulic pumps, motors, components and machine elements from wear (at low and high temperatures and at high loads).

Application

Universally applicable demulsifying hydraulic fluids and lubricating oils. They can be used in all types of mobile and stationary hydraulic units where the use of a demulsifying hydraulic oil (type HLP) is recommended.

Specifications

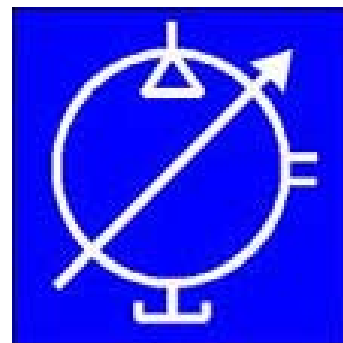
The RENOLIN CL products fulfil and surpass the requirements according to:

- DIN 51 524-2: HLP
 - ISO 6743-4: HM
 - Denison HF 1, HF 2, HF 0
 - Vickers I 286-S, M 2950-S
 - Cincinnati Machine P68, P69, P70
 - US Steel 127, 136
 - AFNOR NFE 48690 (dry) and NFE 48691 (wet)
- Well-known pump manufacturers have approved the RENOLIN CL oils, for example:

- | | |
|-----------|-----------------|
| • Denison | • Bosch Rexroth |
| • Sauer | • Danfoss |

Advantages / Benefits

- Excellent demulsibility
- Very good corrosion protection - steel
- Good corrosion protection - copper
- High ageing stability / high oxidation stability
- Good AW wear protection
- Very good hydrolytic stability
- Excellent filtration behaviour (dry, wet)
- Low foaming
- Excellent air release



September 2006 GDUK Page 1 of 4

The above information is supplied to the best of our knowledge and belief on the basis of the current state-of-the-art and our own development work. Subject to amendment.

Product I N F O R M A T I O N

*FUCHS (UK) PLC.
New Century Street
Hanley
GB-Stoke-on-Trent,
Staffordshire, ST1 5HU*



The RENOLIN CL oils are mineral oil-based hydraulic fluids according to DIN 51 524-2 (demulsifying, zinc-containing) and lubricating oils according to DIN 51 517.

Synergistically acting additives guarantee a long lifetime and the highest hydraulic performance. Even at high temperatures and high loads the base oils together with the additives ensure that the system will be operated reliably during a long lifetime.

The RENOLIN CL series fulfils the high requirements of the DENISON HF-0 specification (hybrid pump test, a combination of a vane and a piston pump – T6H20C combination).

The RENOLIN CL oils offer an excellent thermal stability (Cincinnati Milacron B – pass). The formation of hydrolysis products - when water enters the hydraulic system - will be avoided. The RENOLIN CL series shows an excellent AFNOR and DENISON filtration behaviour. Under dry as well as wet conditions, the filtration behaviour is excellent (low pressure, good flowability).

September 2006 GDUK Page 2 of 4

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Product INFORMATION

FUCHS (UK) PLC.
New Century Street
Hanley
GB-Stoke-on-Trent,
Staffordshire, ST1 5HU



Typical Data: RENOLIN CL RANGE

RENOLIN		CL5	CL10 (B3)	15	CL22 (B5)	CL32 (B10)	
Characteristics	Unit						Test Method
ISO VG		5	10	15	22	32	DIN 51 519
Kinematic viscosity							DIN 51 562-1
at 40°C	mm ² /s	5	10	15	22	32	
at 100°C	mm ² /s	1.7	2.6	3.2	4.3	5.5	
Viscosity Index		-	96	90	107	109	DIN ISO 2909
Density at 15°C	kg/m ³	837	852	865	863	876	DIN 51 757
Colour	ASTM	0.5	0.5	0.5	0.5	0.5	DIN ISO 2049
Flashpoint (Cleveland Open Cup) °C		130	178	150	180	205	DIN ISO 2592
Pour point	°C	-20	-30	-42	-27	-24	DIN ISO 3016
Neutralisation number	mg KOH/g	0.3	0.5	0.3	0.5	0.5	DIN 51 558-3
Air release at 50°C (max.)	minutes	1	1	2	3	4	DIN 51 381
Demulsification							DIN ISO 6614
at 54°C	minutes	10	10	10	10	10	
at 82°C	minutes	-	-	-	-	-	
Copper corrosion	Degree of corrosion			1 – 100 A 3			DIN EN ISO 2160
Steel corrosion	Degree of corrosion			0-A / 0-B			DIN ISO 7120
Brugger-Test	N/mm ²			30			DIN 51 347-2
DENISON filtration							-
TP02100							
dry	-			pass			
wet	-			pass			
AFNOR filtration							NFE 48/690-691
dry	-			pass			
wet	-			pass			
Test electr. conductivity (Fuchs test procedure) -				pass			-

NOTE: Also known as RENOLIN B OILS - outside the UK)

September 2006 GDUK Page 3 of 4

The above information is supplied to the best of our knowledge and belief on the basis of the current state-of-the-art and our own development work. Subject to amendment.

FUCHS LUBRICANTS (UK) PLC.
New Century Street, Hanley
GB-Stoke-on-Trent, Staffordshire, ST1 5HU

Tel: +44-8701 -20 04 00
Fax: +44-1782 -20 20 73
contact-uk@fuchs-oil.com
<http://www.fuchslubricants.com>

Product INFORMATION

FUCHS (UK) PLC.
New Century Street
Hanley
GB-Stoke-on-Trent,
Staffordshire, ST1 5HU



Typical Data: RENOLIN CL RANGE (Continued)

RENOLIN		CL37	CL46 (B15)	CL68 (B20)	CL100 (B30)	CL150 (B40)	CL220	
Characteristics	Unit							Test Method
ISO VG		-	46	68	100	150	220	DIN 51 519
Kinematic viscosity								DIN 51 562-1
at 40°C	mm ² /s	37	46	68	100	150.0	220	
at 100°C	mm ² /s	6.2	6.9	8.7	11.1	14.5	19.2	
Viscosity Index		103	105	100	96	94	97	DIN ISO 2909
Density at 15°C	kg/m ³	875	875	882	881	887	894	DIN 51 757
Colour	ASTM	-	1.5	2.0	2.0	2.5	-	DIN ISO 2049
Flashpoint (Cleveland Open Cup)	°C							DIN ISO 2592
		208	210	224	232	224	230	
Pour point	°C	-31	-24	-24	-18	-15	-15	DIN ISO 3016
Neutralisation number	mg KOH/g	0.3	0.5	0.5	0.5	0.5	0.3	DIN 51 558-1
Air release at 50°C (max.)	minutes	5	6	12	20	30		DIN 51 381
Demulsification								DIN ISO 6614
at 54°C	minutes	10	10	15	-	-		
at 82°C	minutes	-	-	-	5	5		
Copper corrosion	Degree of corrosion				1 – 100 A 3			DIN EN ISO 2160
Steel corrosion	Degree of corrosion				0-A / 0-B			DIN ISO 7120
Brugger-Test	N/mm ²				30			DIN 51 347-2
DENISON filtration								-
TP02100								
dry	-				pass			
wet	-				pass			
AFNOR filtration								NFE 48/690-691
dry	-				pass			
wet	-				pass			
Test electr. conductivity (Fuchs test procedure) -					pass			-

NOTE: Also known as RENOLIN B OILS - outside the UK)

WARNING: Never mix zinc-free hydraulic fluids with those containing zinc-based additives.

September 2006 GDUK Page 4 of 4

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FUCHS LUBRICANTS (UK) PLC.
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Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 01.06.2007

Revision: 01.06.2007

1 Identification of the substance/preparation and of the company/undertaking

- **Product details**
- **Trade name:** RENOLIN CL46
- **Article number:** 600043469
- **Application of the substance / the preparation** Hydraulic fluid
- **Manufacturer/Supplier:**
FUCHS LUBRICANTS (UK) PLC.
New Century Street
Hanley
Stoke-on-Trent, Staffordshire, ST1 5HU
UK
Emergency telephone: (UK) 08701 200400
e-mail: product.safety@fuchs-oil.com
- **Further information obtainable from:** Product safety department.
- **Information in case of emergency:** Emergency telephone: (UK) 08701 200400

2 Hazards identification

- **Hazard description:** Not applicable.
- **Information concerning particular hazards for human and environment:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization:**
- **CAS No. Description**
Highly refined mineral oil
- **Identification number(s)**
- **Additional information:** A blend of highly refined mineral oils with multifunctional additives
- **Chemical characterization**

· Dangerous components:		
Butylated phenol		N; R 51/53 ≤ 2.5%

4 First aid measures

- **General information:** No special measures required.
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:**
Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Wash mouth out with water
Do not induce vomiting; call for medical help immediately.

(Contd. on page 2)

Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 01.06.2007

Revision: 01.06.2007

Trade name: RENOLIN CL46

(Contd. of page 1)

· Information for doctor:

High pressure injection injuries through the skin require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

5 Fire-fighting measures

· Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· For safety reasons unsuitable extinguishing agents: Water with full jet**· Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

6 Accidental release measures

· Person-related safety precautions: Particular danger of slipping on leaked/spilled product.**· Measures for environmental protection:**

Do not allow to penetrate the ground/soil.

Do not allow to enter sewers/ surface or ground water.

· Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Send for recovery or disposal in suitable receptacles.

· Additional information: No dangerous substances are released.

7 Handling and storage

· Handling:**· Information for safe handling:** Prevent formation of aerosols.**· Information about fire - and explosion protection:** No special measures required.**· Storage:****· Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.**· Information about storage in one common storage facility:** Store away from oxidizing agents.**· Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

8 Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see item 7.**· Ingredients with limit values that require monitoring at the workplace:****Highly refined mineral oil**

OEL	Short-term value: 10 mg/m ³
	Long-term value: 5 mg/m ³

· Additional information: The lists valid during the making were used as basis.**· Personal protective equipment:**

Select PPE appropriate for the operations taking place taking into account the product properties.

· General protective and hygienic measures:

Do not carry product impregnated cleaning cloths in trouser pockets.

Avoid close or long term contact with the skin.

Do not eat, drink, smoke or sniff while working.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

(Contd. on page 3)

Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 01.06.2007

Revision: 01.06.2007

Trade name: RENOLIN CL46

(Contd. of page 2)

- **Respiratory protection:** Not required.
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Safety glasses
Goggles recommended during refilling
- **Body protection:** Oil resistant protective clothing

9 Physical and chemical properties

· General Information

Form:	Fluid
Colour:	Brown
Odour:	Characteristic

· Change in condition

Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.

· **Flash point:** > 100°C

· **Ignition temperature:** >250°C

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density at 20°C:** 0.88 g/cm³

· **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

· **Viscosity:**
Kinematic at 40°C: 46.0 cSt

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous decomposition products:** Carbon monoxide and carbon dioxide

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

(Contd. on page 4)

Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 01.06.2007

Revision: 01.06.2007

Trade name: RENOLIN CL46

(Contd. of page 3)

The substance is not subject to classification according to the latest version of the EU lists.

12 Ecological information

- **Behaviour in environmental systems:**
- **Mobility and bioaccumulation potential:** Product is not expected to bioaccumulate.
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

- **Product:**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Contact waste processors for recycling information.
Delivery of waste oil to officially authorized collectors only.
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.
- **European waste catalogue**
Waste key numbers in accordance with the European Waste catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

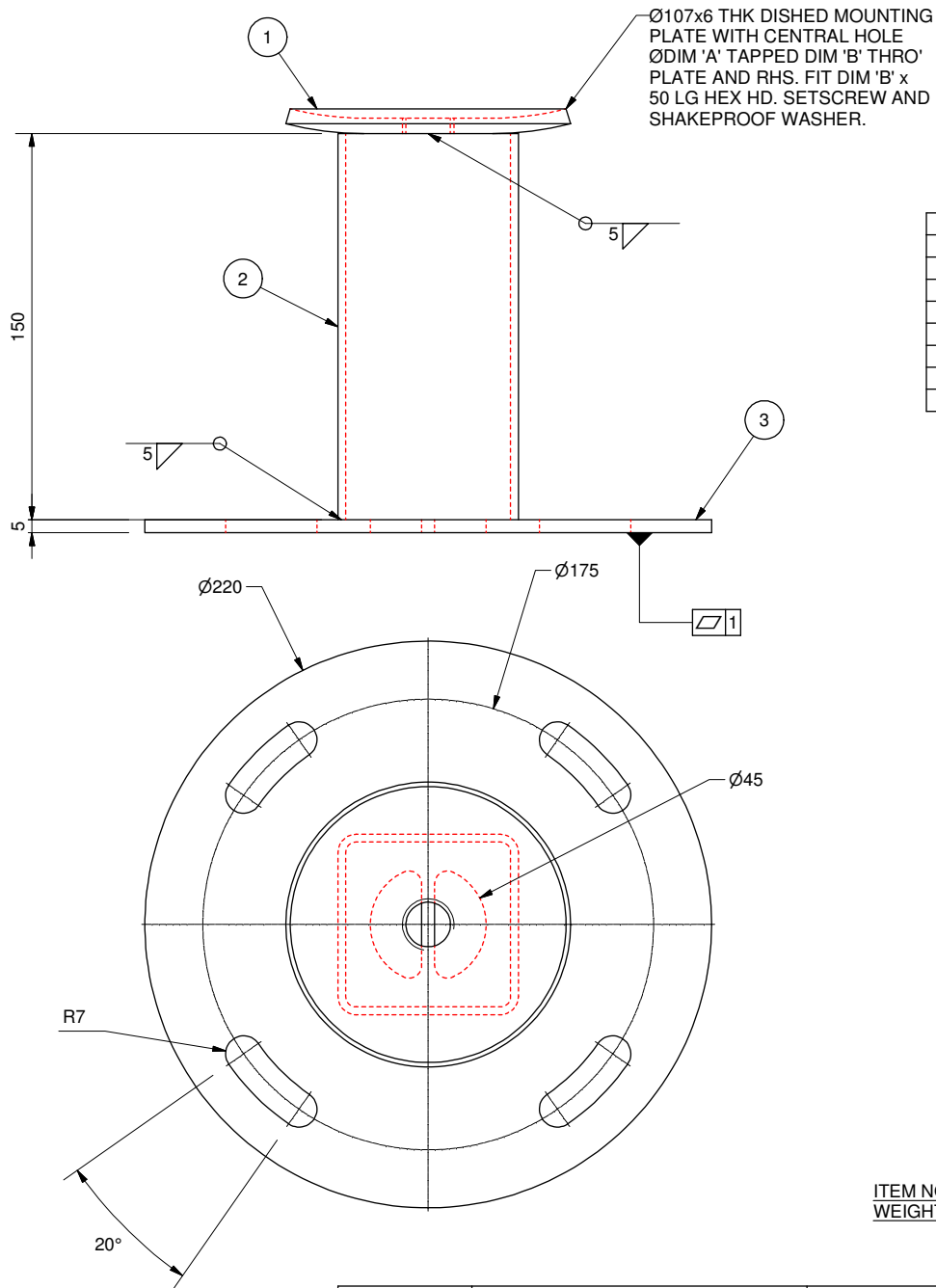
15 Regulatory information

- **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals.
The substance is not subject to classification according to EU lists and other sources of literature known to us.
- **Special labelling of certain preparations:**
Safety data sheet available for professional user on request.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

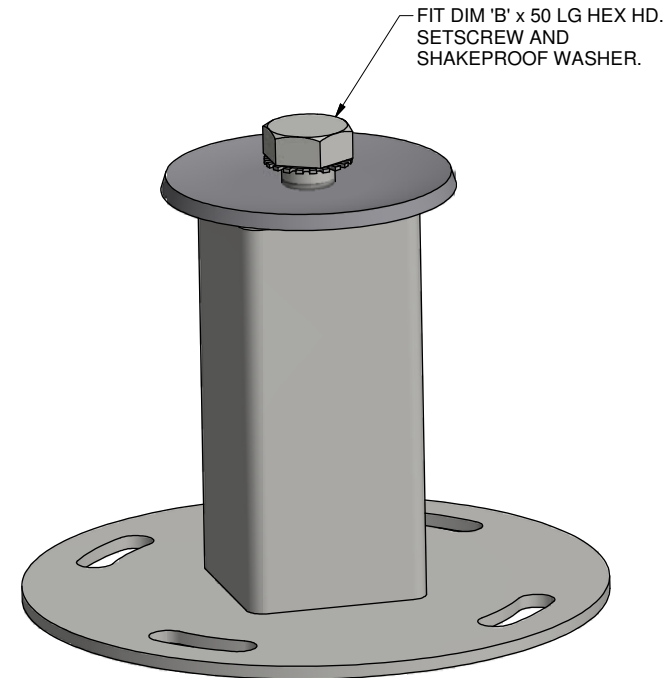
- **Relevant R-phrases**
51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- **Department issuing MSDS:** Product safety department.
- **Contact:** GORDON SHARP



CUTTING LIST			
ITEM	ITEM NUMBER	DESCRIPTION	QTY
1	CAP1076/'A'D	107DIA X 6THK 'A' DIA PUNCHED HOLE DISH	1
2	ARM7070150	70 X 70 RHS 150 LG	1
3	CAP2205/175/1M	220DIAx5THK 4 SLOTS 175PCD	1

ITEM REF TABLE		
ITEM REF	DIM 'A'	DIM 'B'
SB1	17.5	M20
SB1/M16	14	M16
SB1/M14	12	M14
SB1/M12	10.2	M12
SB1/M10	8.5	M10
SB1/M8	6.8	M8
SB1/M6	5	M6

- NOTES
- FIRST ANGLE PROJECTION.
 - DIMENSIONS SHOWN IN BRACKETS THUS (25) ARE REF. DIMENSIONS ONLY.
 - REMOVE ALL BURRS & SHARP EDGES.
 - DO NOT SCALE IF IN DOUBT ASK.
 - WELDING SYMBOLS ARE TO BS EN 24063 & BS EN 22553
 - ALL STANDARDS & SPECIFICATIONS ARE TO BE TO THE LATEST REVISIONS.
 - FILLET WELDS TO BE TO WELD PROCEDURE No. 031W.
 - MATERIAL: CHS TO BS EN 10210 GRD S275 WITH A TENSILE STRENGTH OF 430N/mm²
CHS TO BE EN 10210 GRD S355 WITH A TENSILE STRENGTH OF 490N/mm².
PLATE FROM M.S TO BSEN 10025 GRD S275.
PLATE 25mm THICK AND OVER TO BE CHARTPY TEST VALUE OF 27J (MIN) AT -15°C.
 - FINISH HOT DIP GALV TO BS EN ISO 1461.
 - 1 NO 20MM CABLE GLAND TO BE SUPPLIED IN THE STORES KIT.



ITEM NO SB1
WEIGHT = 3KG

AB	C	SEE AMD 3392	27/3/18	185
AB	B	SEE AMD 3309	8/12/16	MM
AB	A	SEE AMD 3307	08/11/2016	BP
SIG	REV	DESCRIPTION	DATE	CHKD



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THIS DESIGN AND SUPPORTING DOCUMENTS ARE THE SOLE PROPERTY OF ABACUS LIGHTING LIMITED AND MUST NOT BE REPRODUCED.
Patent No.
Reg. Design No.

General tolerances unless stated otherwise:-
0mm-500mm----- ± 1
501mm-1000mm--- ± 1
Above----- ± 1

Drawn A.BOOOTH
Checked L DYE
Not to scale
Date 21/11/2006

Title BRACKET REF SB1
Sales order No.

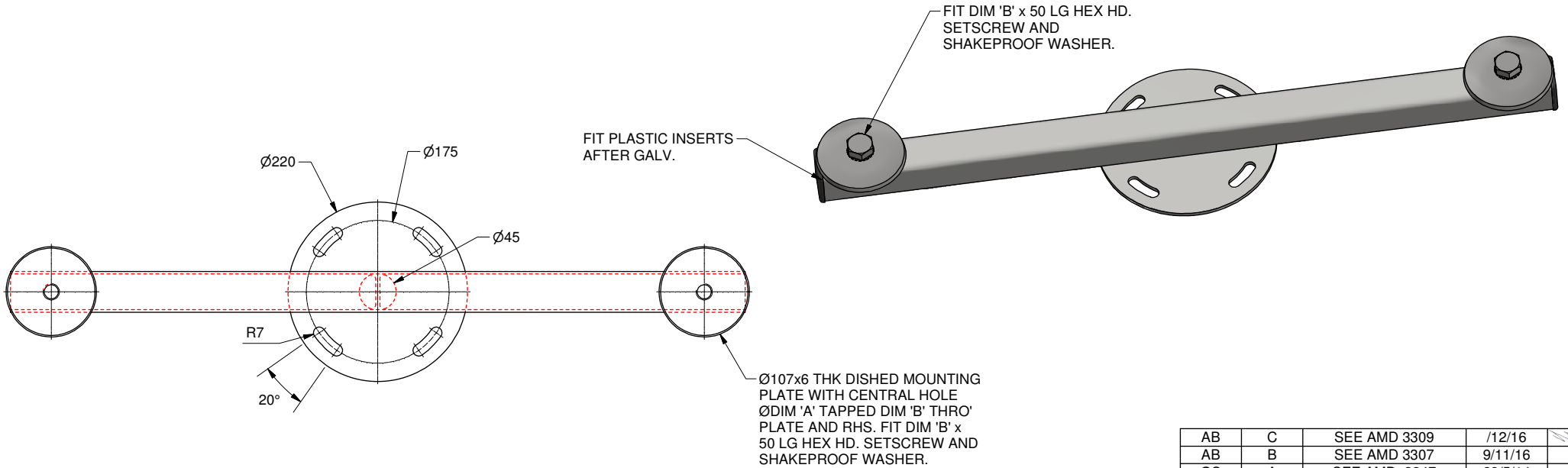
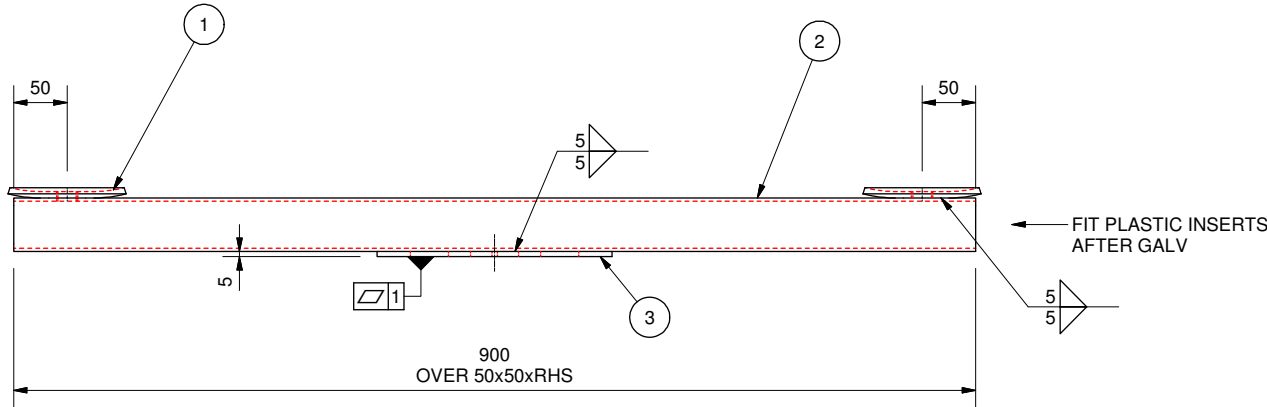
Abacus
Leaders in Lighting
Client STANDARD COMPONENT
Drg. No. SB1

CUTTING LIST				
ITEM	QTY	PART NUMBER	DESCRIPTION	
1	2	CAP1076/DIM'A'D	107DIA x 6THK DIM 'A' PUNCHED HOLE DISH	
2	1	ARM5050900	50x50x3 RHS 900 LG	
3	1	CAP2205/175/1	220DIAx5THK 4 SLOTS 175PCD	

NOTES

- FIRST ANGLE PROJECTION.
- DIMENSIONS SHOWN IN BRACKETS THUS (25) ARE REF. DIMENSIONS ONLY.
- REMOVE ALL BURRS & SHARP EDGES.
- DO NOT SCALE IF IN DOUBT ASK.
- WELDING SYMBOLS ARE TO BS EN 24063 & BS EN 22553
- ALL STANDARDS & SPECIFICATIONS ARE TO BE TO THE LATEST REVISIONS.
- FILLET WELDS TO BE TO WELD PROCEDURE No. 031W.
- MATERIAL: CHS TO BS EN 10210 GRD S275 WITH A TENSILE STRENGTH OF 430N/mm²
CHS TO BE EN 10210 GRD S355 WITH A TENSILE STRENGTH OF 490N/mm².
PLATE FROM M.S TO BSEN 10025 GRD S275.
PLATE 25mm THICK AND OVER TO BE CHARPY TEST VALUE OF 27J (MIN) AT -15°C.
- FINISH HOT DIP GALV TO BS EN ISO 1461.
- 2 NO 20MM CABLE GLAND TO BE SUPPLIED IN THE STORES KIT.

ITEM REF TABLE		
ITEM REF	DIM 'A'	DIM 'B'
SB2	17.5	M20
SB2/M16	14	M16
SB2/M14	12	M14
SB2/M12	10.2	M12
SB2/M10	8.5	M10
SB2/M8	6.8	M8
SB2/M6	5	M6



AB	C	SEE AMD 3309	/12/16	
AB	B	SEE AMD 3307	9/11/16	BP
GS	A	SEE AMD 3247	28/5/14	AB
SIG	REV	DESCRIPTION	DATE	CHK

	© Copyright Abacus Lighting Ltd. All Rights Reserved. THIS DESIGN AND SUPPORTING DOCUMENTS ARE THE SOLE PROPERTY OF ABACUS LIGHTING LIMITED AND MUST NOT BE REPRODUCED.	General tolerances unless stated otherwise:- 0mm-500mm----- ± 1 501mm-1000mm--- ± 1 Above----- ± 1	Drawn A.BOOOTH	Title BRACKET REF SB2		
			Checked L DYE			
				Not to scale		Client STANDARD COMPONENT
	Patent No. Reg. Design No.			Date 21/11/2006	Sales order No.	Drg. No. SB2

FLOODLIGHTING EQUIPMENT:

4 x NEW 15m MASTS Carrying the following AAA Lux
Luminaires
M1, M4.....A 1 x WS250 LS / 1550W / GEN 7.0.1
.....B 1 x WS290 LS / 1550W / GEN 7.0.1

M2, M3.....B 1 x WS290 LS / 1550W / GEN 7.0.1

4 x EXISTING 12m MASTS Carrying the following AAA
Lux Luminaires
M5.....A 1 x WS250 LS / 1550W / GEN 7.0.1

M6-M8.....B 1 x WS290 LS / 1550W / GEN 7.0.1

Maximum Elevation 68°

HORIZONTAL ILLUMINANCE LEVELS

Training Pitch (specified level)

Average Maintained Horizontal Illuminance (Eh.m): 100 lx
Uniformity Ratio (E.min / E.av): 0.5

Training Pitch (Calculated level)

Average Initial Horizontal Illuminance (Eh.m): 123 lx
Average Maintained Horizontal Illuminance (Eh.m): 110 lx
Uniformity Ratio (E.min / E.av): 0.11

Surrounding Area (Calculated level)

Average Initial Horizontal Illuminance (Eh.m): 81 lx
Average Maintained Horizontal Illuminance (Eh.m): 72 lx
Uniformity Ratio (E.min / E.av): 0.01

GRmax=52

Grid Intervals 5x5m

Maintenance Factor: 0.9

Based Upon:

- Luminaires depreciation due to dirt
- Medium Pollution
- Pre-season cleaning of floodlights

Initial Levels Shown

Figures taken with no over spill from adjacent Lighting

Mast location and pitch scale Provided by customer.
Please check prior to ordering

Obtrusive Light - Compliance Report

CIE 150:2017, E3-Medium District Brightness, Pre-Curlew
Filename: UKS18059 YYG Rugby Pitch
04/06/2021 09:40:49

Illuminance

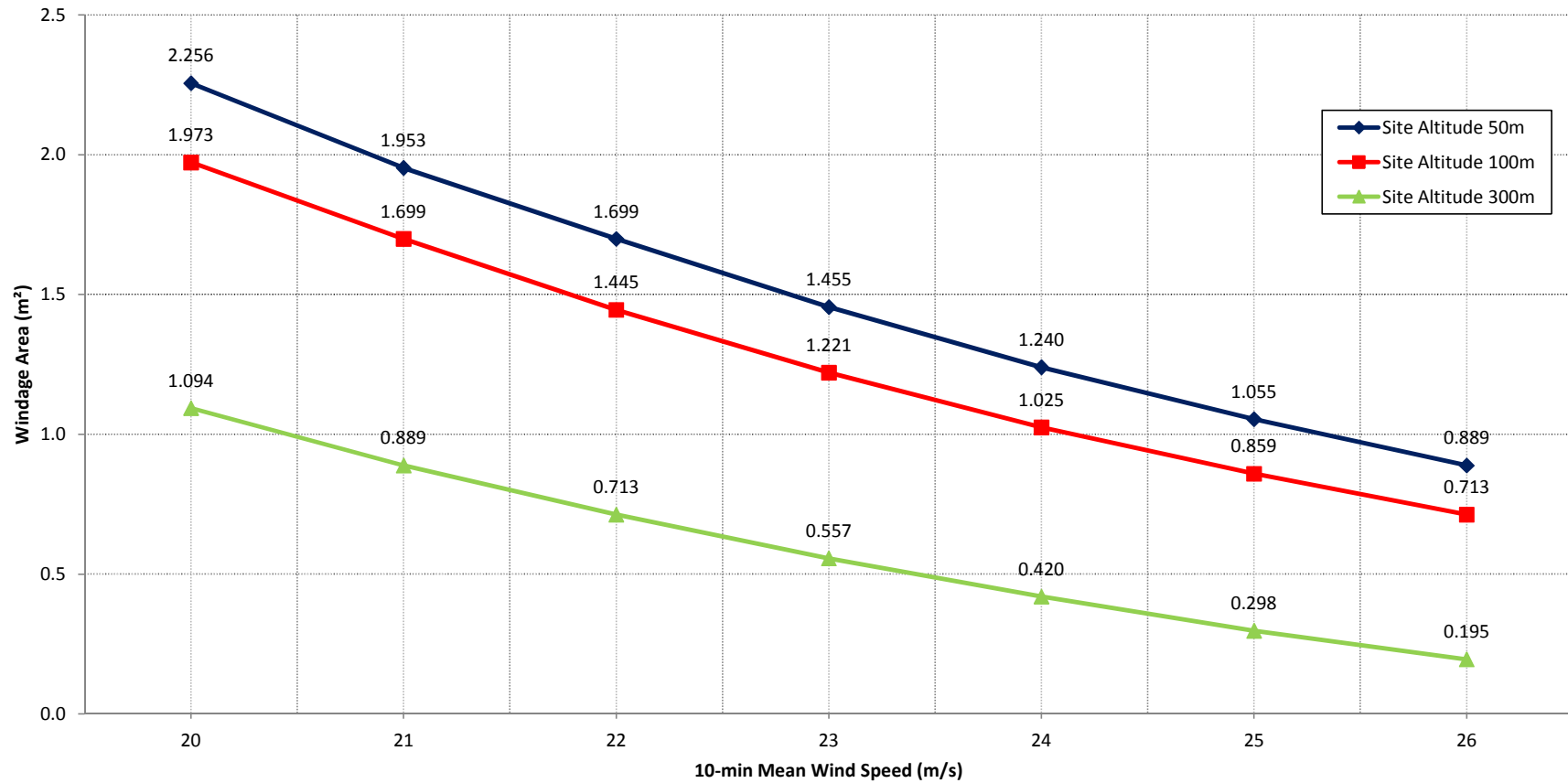
Maximum Allowable Value: 10 Lux

Calculations Tested (8):

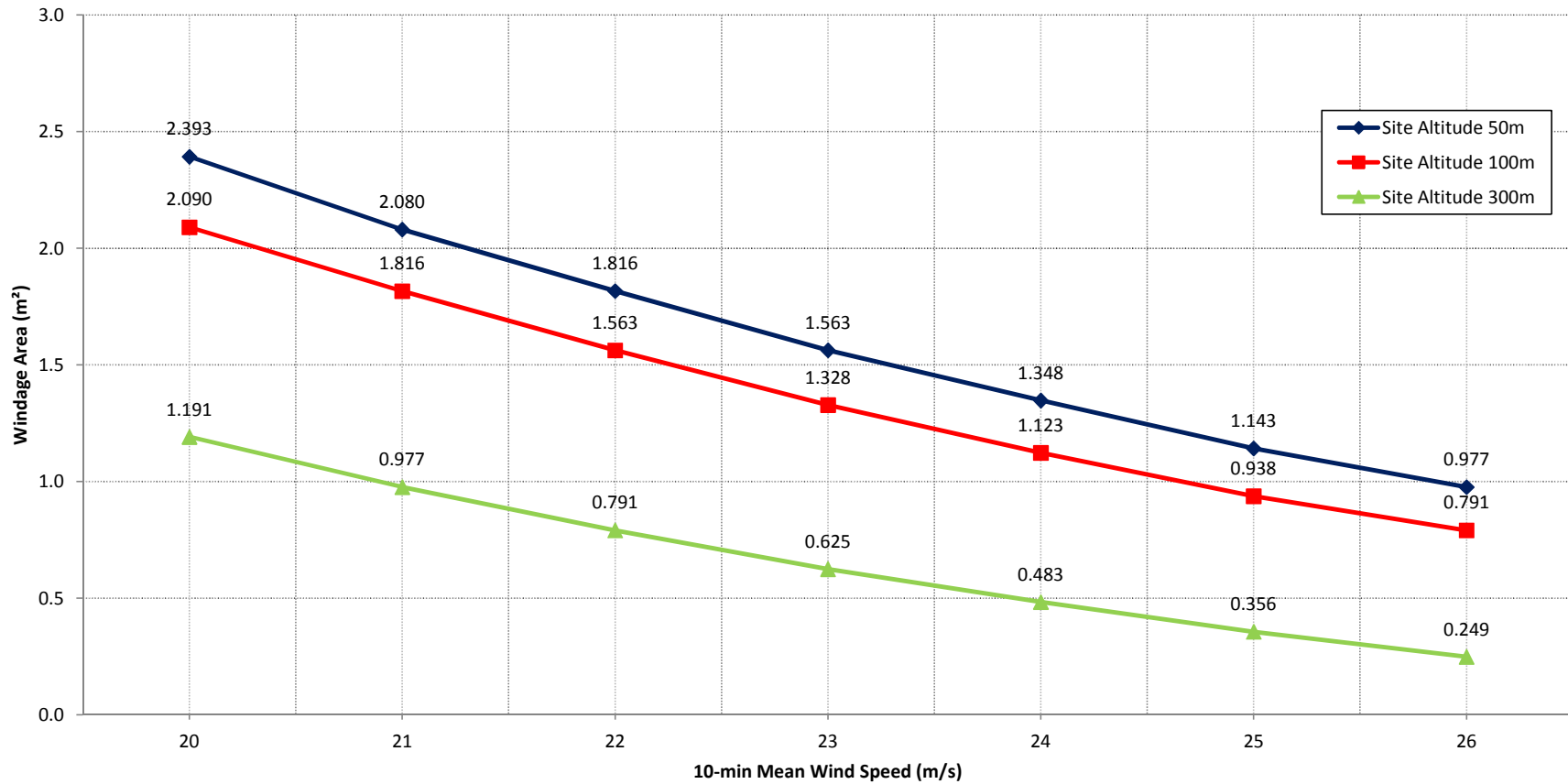
Calculation Label	Test Results	Max. Illum.
Gerdri Cyfarthfa 3_III_Seg1	FAIL	20
Pontycapel Road_III_Seg1	PASS	4
Pontycapel Road 1_III_Seg1	PASS	8
Pontycapel Road 2_III_Seg1	PASS	1
Gerdri Cyfarthfa_III_Seg1	FAIL	16
Gerdri Cyfarthfa 1_III_Seg1	PASS	2
Gerdri Cyfarthfa 2_III_Seg1	PASS	1
Heol-Y-Cae_III_Seg1	FAIL	11



Performance Data for HL250D15 - 15m
Location: 10km from Sea
Headload: 100kg



Performance Data for HL250D15 - 15m
Location: 50km from Sea
Headload: 100kg



Performance Data for HL250D15 - 15m
Location: 100km from Sea
Headload: 100kg

