# WHY DO WE NEED 360 VISION ON PLANT MACHINERY?

The ability for drivers of plant machinery to identify persons/machinery/structures within their particular machines working zone is of paramount importance to ensure the safety of those who work around plant and stability/protection of structures adjacent to the machinery.

Regulations such as PUWER and HSG Guidance documents such as HSG 144 “The Safe Use of Vehicles on Construction Sites” establish the requirement to ensure adequate visibility for the driver all around the machine where people may be at risk from the operation of the machine.

This requirement is detailed further in British Standard BS5006 “Earth-moving machinery — Operator’s field of view — Test method and performance criteria” which defines the specific requirements including the testing procedure to enable proper, effective and safe operation by the operator of the plant machinery he is operating.

This communication is intended to provide you with information regarding the process for checking that all plant on this site meets these requirements before we approve its use on our project.

# HOW DO WE CHECK 360 VISION ON PLANT MACHINERY?

This International Standard specifies the following requirements for measurement:

1. Plant to be positioned on a test surface (compacted earth or paved surface) which has a gradient not exceeding 3% in any direction, with equipment & attachments (mirrors) located as per manufacturers specification (O&M Manual).
2. All machine openings, such as doors and windows, shall be closed when performing the test.
3. At a distance of 1m out (rectangular boundary line around machinery) and 1.5m high (maximum height from ground) the operator must be able to see any incursion (persons or obstacles) within this field.
4. NOTE: For Articulated dumpers the boundary line to the front of the cab is increased to 1.5m for dumpers below 25T & 2.5m above 25T. For Graders the boundary line at the rear is increased to 2m.
5. Any obstruction of view (maskings) within this field must not exceed 300mm, ie no part of the machine will obstruct the operators view than by more than 300mm.

Explanation Diagram



**Key:**

**MB** Machine Boundary

**RB** Rectangular 1m boundary (from all four sides of machine)

**FPCP** Filament Position Centre Point (Operators Eye Level)

**M** Masking length on RB

**ME** Masking effective length through operator vision, (ie when sighting through obstruction such as cab post)

**MM** Maximum masking is 300mm

**CP** Cab Post

1. The object used to check the visibility at the vertical measurement of 1.5m high should be a suitable width (e.g. 150 mm), used to evaluate the maskings on the rectangular 1 m boundary.
2. At a distance of 12 radius from the machine (Visibility test circle) the operator must be able to see all incursions into his view. Specific sizes of maskings are acceptable dependent on the zonal area around the machine applicable to the machine type and these can be found in Table 1 of BS5006.

# EXAMPLE DIAGRAMS OF MACHINE POSITIONS FOR PURPOSE OF TEST.

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# WHAT TO DO WHEN MASKINGS (VISION OBSTRUCTIONS) ARE OUTSIDE THE SPECIFICATION:

* Manufacturer/Supplier to install additional devices such as Mirrors or CCTV (in direct view) to compensate for inadequate direct view (operators eye line) visibility.

NOTE: No dispensation is given from the standard after additional devices are installed and it is advised that Site Supervisors identify and apply effective jobsite organization to compensate for remaining visibility maskings, such as Restricted access exclusion zones, additional banksman, restrictors to control plant movements.

# ALWAYS:

* Check that plant meets requirements, including 360° vision (documentation provided by subcontractor/supplier) and all machine certification under specific regulations such as LOLER & PUWER, ie, 12monthly & 6monthly examination records as required, before approving for use on the project;
* Ensure that as part of his daily checks the operator confirms that he has 360° visibility before operating the plant and he continues to check frequently;
* NOTE: Any CCTV systems installed must comply with ISO 16001;
* Confirm with operator his familiarity with the O&M Manual for the machinery he is using, which details information regarding the position and use of mirrors or visual aids (CCTV) when provided.

**360 VISION IS A MUST - BE SEEN & BE SAFE!**