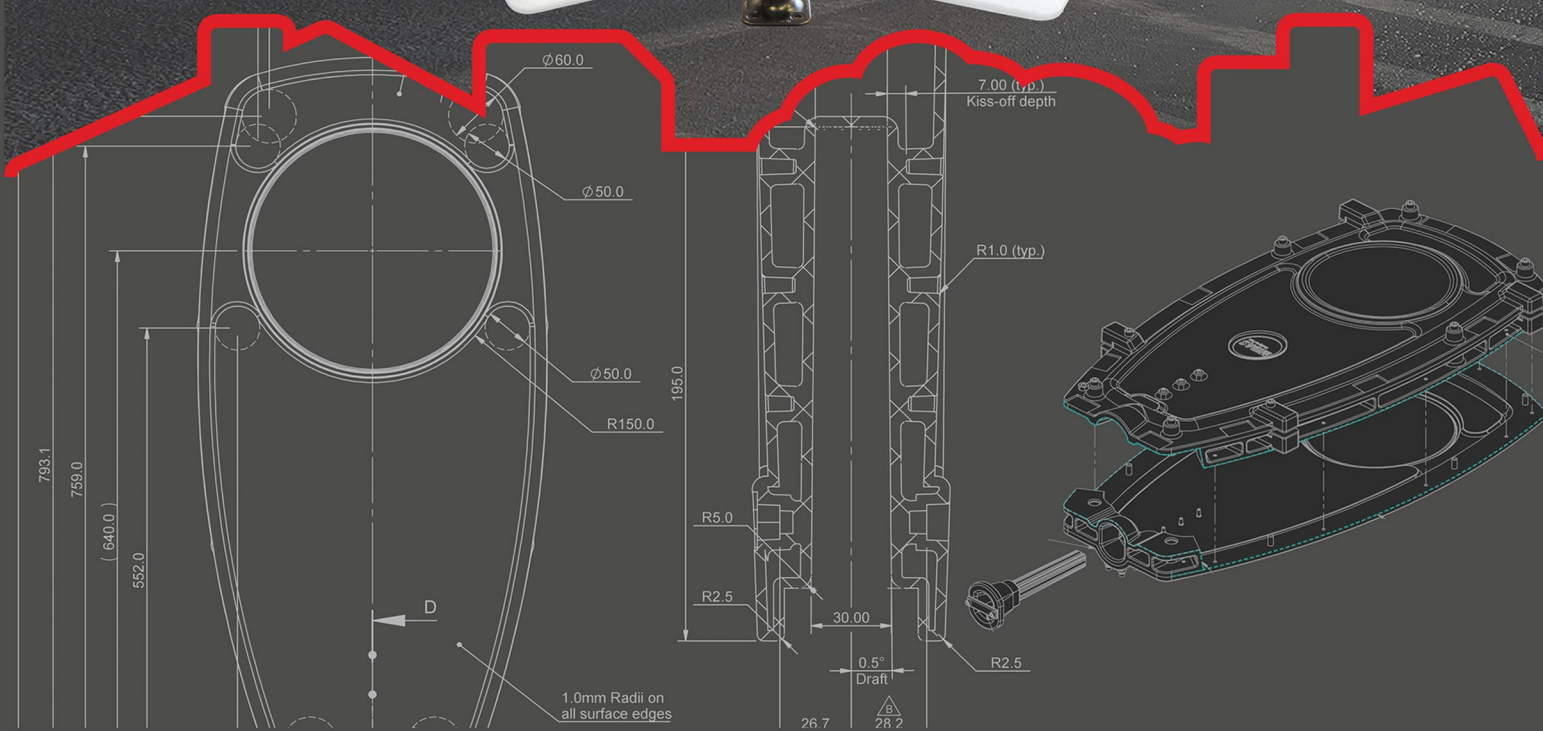


Reliaboll™ Self Righting Traffic Bollards

Solar Powered | Mains Powered | Retro-Reflective



Product Brochure

At Pudsey Diamond Engineering Limited we design and manufacture quality products that are easy to install and provide a long, trouble-free service life. Along with our innovative designs, our products utilise the highest quality materials and the very best quality assurance procedures throughout the production process. All of our products are manufactured in our UK factory and comply with all of the relevant industry standards.

We have been manufacturing traffic bollards for nearly 20 years and our Reliaboll range delivers a variety of reflective, solar and mains powered options with a common aesthetic. As a leading supplier to the Highways Infrastructure industry, our bollards have a proven track record and we are the manufacturer of choice for many Local Authorities.

The newest addition to the range, our Flexaboll retro-reflective self righting bollard, was introduced to coincide with the changes in legislation for the de-illumination of bollards., see page 3 for more details.

With our wide product range and multiple mounting options we have a solution for every application and budget!



Reliaboll™ *Self Righting Traffic Bollards*

Retro-reflective self righting bollard

Our unique quick-release bollard, saving you time and money

Our unique Flexaboll bollard makes knock-downs quick, easy, and economical to solve; the detachable rubber base can be retained, with only the top in need of replacement. With the changes in legislation to de-illumination of bollards, Flexaboll serves as an ideal solution that is built to last.

The robust rotomolded semi-flexible shell provides optimum rebound performance and with a smooth finish, makes the bollard easy to clean and low maintenance. Recessed panels give added protection against impact, vandalism and weathering. Multiple mounting options available for new and existing installations.

Principal Features	
Reduced replacement cost; quick and easy replacement of bollard top via single attachment bolt which can reduce replacement cost by 30%	Compliant to BS 8442:2015
Detachable base	Complies with standard both as single AND double aspect
Passively safe to BS EN 12767:2007	Made from 100% recyclable materials (excluding retro-reflective panels)
Retro-reflective panels give excellent visibility day and night	270mm sign face
Fully reboundable	All regulatory sign aspects available

Options:

- Single aspect
- Single aspect with rear reflective panel
- Double aspect
- Black or white body
- Tamperproof fixing option available

Mounting Options:

- Ground cage for new installations
- Universal adaptor plate
- NAL socket adaptor plate
- Fixing kit for existing small footprint bases



Retro-reflective self righting bollard

The impressive reflective bollard that actually looks like a bollard! Stylish modern design to complement street scene. Profiled to reduce dirt build up on graphics. Passed BS EN 12767:2007 to 100/NE4 passive safety performance standard.

Our versatile and high quality retro-reflective Visaboll bollard is moulded with no mechanical parts for ultimate flexibility and damage resistance. With optimum rebound performance, the robust one piece rotomolded semi-flexible polyethylene shell is easy to clean and low maintenance. Recessed panels give added protection against impact, vandalism and weathering. Multiple mounting options available for new and existing installations.

Principal Features	
Uniform street scene with the large footprint bollards from our range	Complies with standard both as single AND double aspect
Passively safe to BS EN 12767:2007	Made from 100% recyclable materials (excluding retro-reflective panels)
Retro-reflective panels give excellent visibility day and night	Recessed panels to give added protection on impact
Fully reboundable	270mm sign face
Compliant to BS 8442:2015	All regulatory sign aspects available

Options:

- Single aspect
- Single aspect with rear reflective panel
- Double aspect
- Black or white body
- Tamperproof fixing option available

Mounting Options:

- Ground cage for new installations
- Universal adaptor plate
- NAL socket adaptor plate



Solar powered self righting bollard

Our '**Award Winning**' solar powered self-righting eco-friendly bollard; with long-life batteries installed below ground level for reliability and durability, even after impacts. Solaboll is perfect for areas where an illuminated bollard is required but there is no mains power. With optimum rebound performance, the robust one piece rotomolded semi-flexible polyethylene shell is easy to clean and low maintenance. Recessed panels give added protection against impact, vandalism and weathering. Solaboll can be remotely diagnosed using our "Databoll" Remote Management System (see page 11).

Principal Features	
A solar solution that's both eco-friendly AND highly cost effective	Passively safe to BS EN 12767:2007
L1 luminance	Retro-reflective panels give excellent visibility day and night
Quick and easy replacement of bollard top with simple plug-in connector	Fully reboundable
Battery life expectancy 5 years (depending on location and available light)	Compliant to BS 8442:2015
Batteries housed in an IP67 underground box for additional safety	Complies with standard as single AND double aspect
Light sensor controlled for accurate switching	Made from 100% recyclable materials (excluding retro-reflective panels)
Modular design for easy replacement of solar panel, sign face and bollard top	270mm sign face
Uniform street scene with the large footprint bollards from our range	All regulatory sign aspects available

Options:

- Single aspect
- Single aspect with rear reflective panel
- Double aspect (rear sign-face non illuminated)
- Black or white body
- Tamperproof fixing option available

Mounting Options:

- Below ground battery box



Mains powered self righting bollard

Our Powaboll bollard is a very low consumption self-righting powered bollard for new and retro-fit installations. With optimum rebound performance, the robust one piece rotomolded semi-flexible polyethylene shell is easy to clean and low maintenance. Recessed panels give added protection against impact, vandalism and weathering.

Simple and easy to retrofit to most existing base lights using a range of robust & durable conversion plates

Principal Features	
L2 luminance	Fully reboundable
Acts as a fully reflective bollard when not lit	Compliant to BS 8442:2015
A range of retrofit options available for existing base lights	Complies with standard as single AND double aspect
Passively safe to BS EN 12767:2007	Made from 100% recyclable materials (excluding retro-reflective panels)
Retro-reflective panels give excellent visibility day and night	270mm sign face
Uniform street scene with the large footprint bollards from our range	All regulatory sign aspects available

Options:

- Single aspect
- Single aspect with rear reflective panel
- Double aspect (rear sign-face non illuminated)
- Black or white body
- Tamperproof fixing option available

Mounting Options:

- IP67 ground termination box
- Gear tray and plinth options available for existing base light units
- Ducted termination box option available



Translucent retro-reflective self righting bollard

Providing the perfect solution to illuminating and de-illuminating! Taking the proven robustness of the Visaboll shell, Glowboll is manufactured from an innovative translucent material. With optimum rebound performance, the robust one piece rotomolded semi-flexible polyethylene shell is easy to clean and low maintenance. Recessed panels give added protection against impact, vandalism and weathering.

Glowboll can be retro-fitted to any existing base light unit and should you decide to de-illuminate, you have a fully compliant retro-reflective bollard in situ!

<i>Principal Features</i>	
L2 luminance depending on base light type	Fully reboundable
Acts as a fully reflective bollard when not lit	Compliant to BS 8442:2015
A range of retrofit options available for existing base lights	Complies with standard as single AND double aspect
Passively safe to BS EN 12767:2007	Made from 100% recyclable materials (excluding retro-reflective panels)
Retro-reflective panels give excellent visibility day and night	270mm sign face
Uniform street scene with the large footprint bollards from our range	All regulatory sign aspects available

Options:

- Single aspect
- Single aspect with rear reflective panel
- Double aspect
- White body only
- Tamperproof fixing option available

Mounting Options:

- Ground cage for new installations
- Universal adaptor plate to fit into existing base light units
- NAL socket adaptor plate



Retro-reflective or heritage self righting bollard

Design flexibility in a bollard! With I-boll you customise the bollard to your own specification; a range of cladding options; no cladding, single or double aspect options. You choose the bollard design that works for your street scene. Not just for road use, I-boll is ideal for cycle ways and footpaths etc. allowing you to position a full sign face wherever required. I-boll is moulded with no mechanical parts for ultimate flexibility and damage resistance. With optimum rebound performance, the robust one piece rotomolded semi-flexible polyethylene shell is easy to clean and low maintenance. Recessed panels give added protection against impact, vandalism and weathering. Multiple mounting options available for new and existing installations.

Our solar and mains powered I-boll options are detailed on pages 9 and 10.

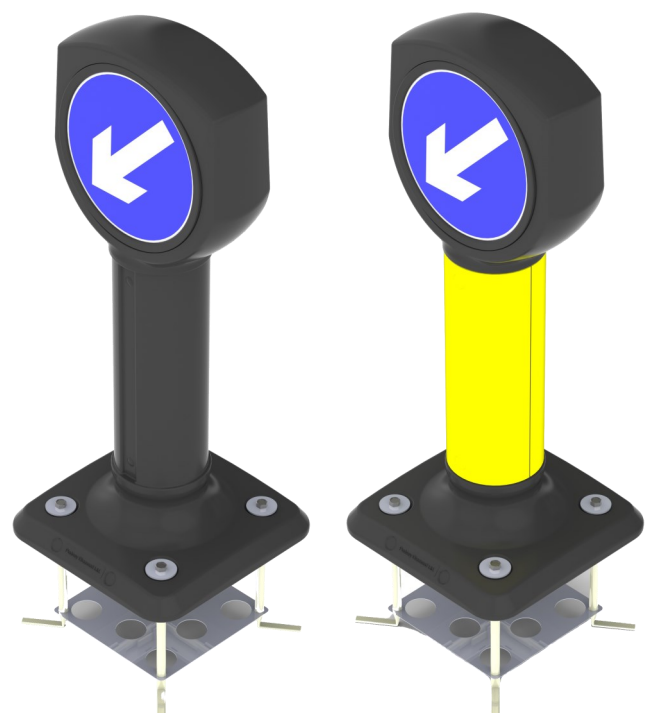
Principal Features	
Design flexibility	Fully reboundable
Heritage options	Compliant to BS 8442:2015
Removable reflective cladding for easy replacement after impact damage	Complies with standard as single AND double aspect
Uniform street scene with the large footprint bollards from our range	Made from 100% recyclable materials (excluding retro-reflective panels)
Passively safe to BS EN 12767:2007	270mm sign face
Retro-reflective panels give excellent visibility day and night (excludes heritage option)	All regulatory sign aspects available

Options:

- Single aspect with or without reflective cladding
- Double aspect with or without reflective cladding
- Black body only
- Tamperproof fixing option available

Mounting Options:

- Ground cage for new installations
- Universal adaptor plate
- NAL socket adaptor plate



Solar powered retro-reflective or heritage self righting bollard

Our I-boll solar powered self-righting eco-friendly bollard has long-life batteries installed below ground level for reliability and durability, even after impacts. I-boll solar is perfect for areas where an illuminated bollard is required but there is no mains power.

Not just for road use, I-boll solar is ideal for cycle ways and footpaths etc. allowing you to position a full LS1 solar sign face wherever required.

I-boll solar can be remotely diagnosed using our “Databoll” Remote Management System (see page 11).

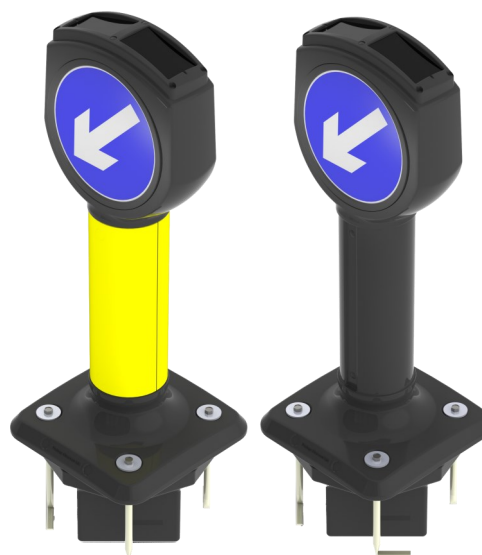
Principal Features	
A solar solution that's both eco-friendly AND highly cost effective	Passively safe to BS EN 12767:2007
L1 luminance	Retro-reflective panels give excellent visibility day and night (excludes heritage option)
Quick and easy replacement of bollard top with simple plug-in connector	Fully reboundable
Battery life expectancy 5 years (depending on location and available light)	Compliant to BS 8442:2015
Batteries housed in an IP67 underground box for additional safety	Complies with standard as single AND double aspect
Light sensor controlled for accurate switching	Made from 100% recyclable materials (excluding retro-reflective panels)
Modular design for easy replacement of solar panel, sign face and bollard top	270mm sign face
Uniform street scene with the large footprint bollards from our range	All regulatory sign aspects available

Options:

- Single aspect with or without reflective cladding
- Double aspect with or without reflective cladding (rear sign-face non illuminated)
- Black body only
- Tamperproof fixing option available

Mounting Options:

- Below ground battery box



Mains powered retro-reflective or heritage self righting bollard

Our I-boll powered is a very low consumption self-righting bollard.

Not just for road use, I-boll powered is ideal for cycle ways and footpaths etc. allowing you to position a full LS2 sign face wherever required.

Simple and easy to retrofit to most existing base lights using a range of robust & durable conversion plates.

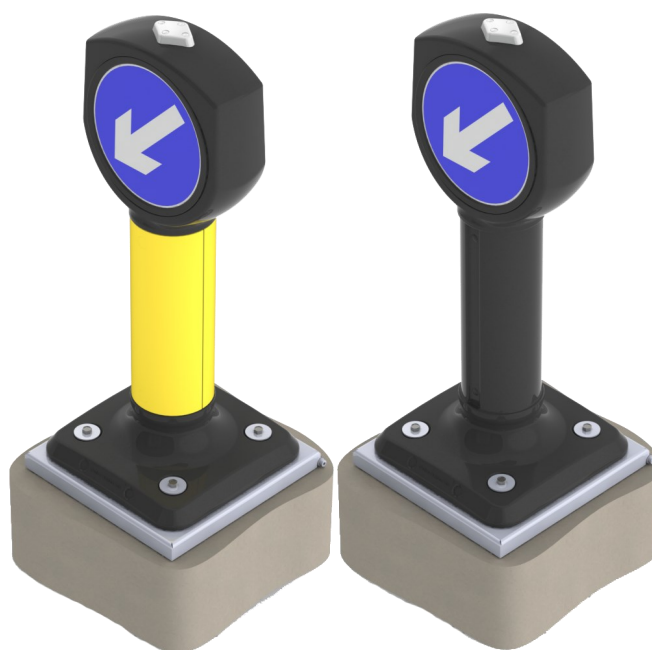
Principal Features	
L2 luminance	Fully reboundable
Heritage options	Compliant to BS 8442:2015
Removable reflective cladding for easy replacement after impact damage	Complies with standard as single AND double aspect
Uniform street scene with the large footprint bollards from our range	Made from 100% recyclable materials (excluding retro-reflective panels)
Passively safe to BS EN 12767:2007	270mm sign face
Retro-reflective panels give excellent visibility day and night (excludes heritage option)	All regulatory sign aspects available

Options:

- Single aspect with or without reflective cladding
- Double aspect with or without reflective cladding (rear sign-face non illuminated)
- Black body only
- Tamperproof fixing option available

Mounting Options:

- IP67 ground termination box
- Gear tray and plinth options available for existing base light units
- Ducted termination box option available



Remote Management System (RMS)

Databoll is a Remote Management System (RMS) device used for controlling, monitoring and remote diagnostics of Solaboll and I-boll Solar bollards. Through simple controls and clear display, this battery operated, hand-held device provides control and monitoring of Pudsey Diamond's range of solar bollards, *from the safety of the roadside.*

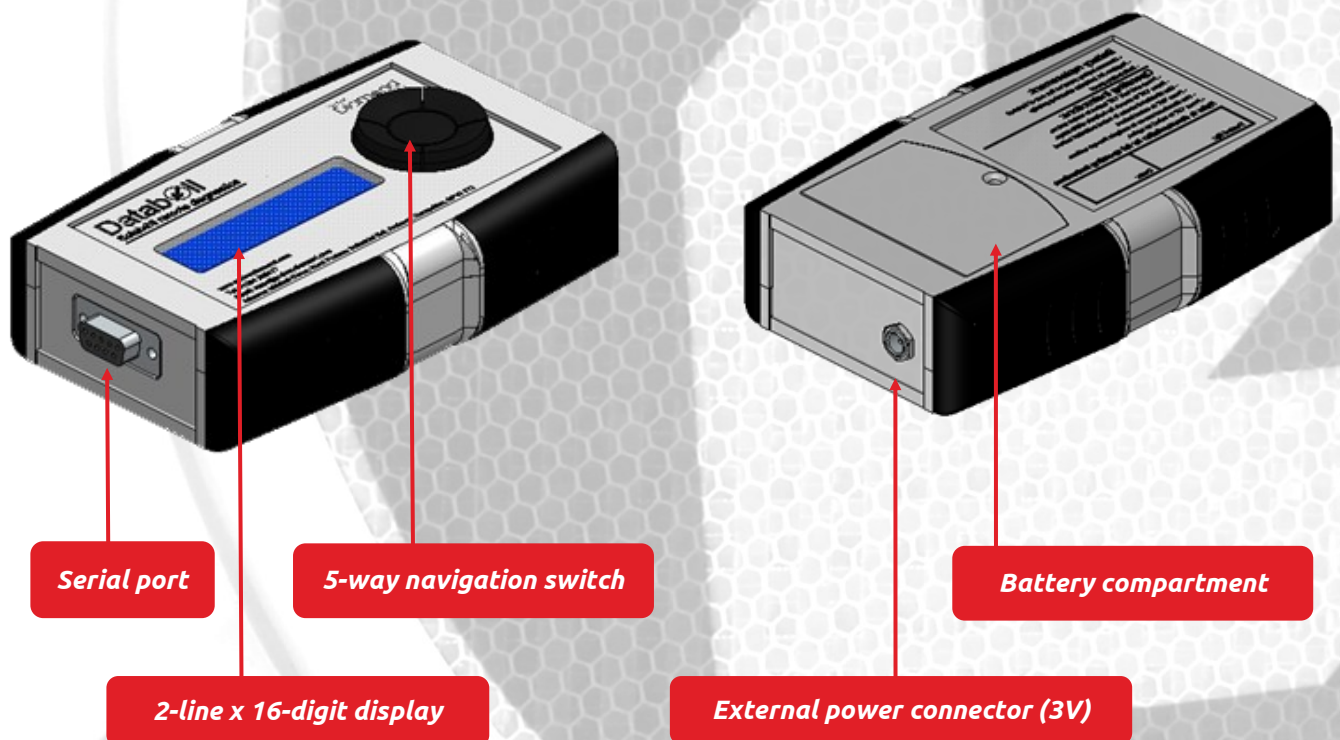
Utilising a short-range low power radio transceiver system, Databoll can interrogate battery voltages, solar panel operation and temperature as well as adjusting light output (brightness), dusk and dawn illumination thresholds, flashing modes (if required) and the download of stored battery voltage data. Databoll can store over 100 bollard downloads and this data can be used, offline, to analyse battery health.

The radio transceiver system has a range of up to 50m though this can be affected by the local environment. This allows the operator to check and adjust the status of the bollard from a safe location.

All Pudsey Diamond solar bollards are, as standard, manufactured with this technology already built-in and these features will be included in our future LED based products.

Databoll is not only innovative and leading edge, it is quite simply ground breaking technology that is ahead of the curve.

Databoll™ controls and connections



Advanced technology: Optimising minimum energy for maximum life and performance using the latest advanced microprocessor controlled driver technology. Accurate night and day switching for real energy economy.

Diamond bright: Solaboll, Powaboll, I-boll Solar and I-boll Powered illuminate to BS EN 12899-2:2007. High efficacy LED matrix for optimum light distribution and accurate lumen output.

Robust and resilient: Compliant with BS 8442:2015 and independently verified to comply with BS EN 12767 and proven to withstand multiple impacts.

Versatile: The Pudsey Diamond Reliaboll range enables economical installation of bollards to current and new locations.

Warranty: All Pudsey Diamond bollards carry a 5-year Warranty from date of purchase against faulty workmanship or materials.

** Datasheets for all models are available on request



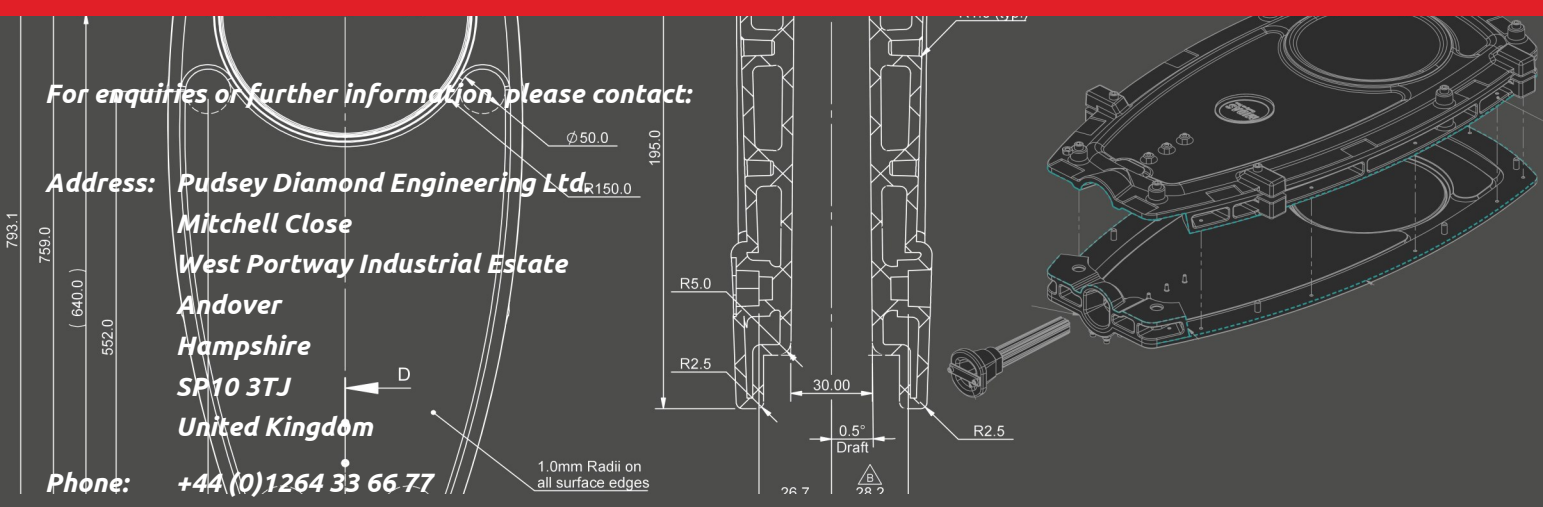
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