

GUNDRILLING HONING DEEP HOLE BORING SUPER FINISHING




**PERFECT BORE
MANUFACTURING LTD**

Overview



The Aerospace, Oil & Gas, Defence and Power Generation industries require the production of bores in components to extreme tolerances and in some cases to sub-micron geometry combined with specific surface finish requirements. Bore solutions supplied by Perfect Bore can be found in components manufactured by major OEMs such as Airbus, BAe, Goodrich Actuation Systems, Boeing, Moog and Rolls Royce; supporting projects including B787 Dreamliner, A400M and A350.

Perfect Bore provides singular and turn-key solutions to both internal and external surface machining operations through its gundrilling, deep-hole boring, honing, superfinishing and CNC turning capabilities. The company is a signatory to SC21 and is committed to providing Aerospace, Defence, Power Generation (including Nuclear) and Oil & Gas markets with bore solutions to highly critical parts. The development of its processes through lean manufacturing initiatives also enables the company to offer cost effective solutions to its clients.



Perfect Bore is a bore producing specialist. It is committed to continuous improvement through ongoing investment in its plant, processes & people and forging long-term relationships with its customers.

History

Andover-based Perfect Bore was formed in 1988 specialising in honing and superfinishing. Following two years of rapid growth, it expanded into gundrilling and consolidated its position in this market by acquisition in 1993, before moving to larger premises in 1994. Further investment led to Perfect Bore manufacturing cylinder liners and pistons predominately for high-end performance Motorsport markets. Following continued growth, Perfect Bore was sold in 2001 to the Dover Corporation Inc, a US Conglomerate. In February 2004 the gundrilling and honing engineering division reverted to private ownership when it was acquired by one of its former owners.

Since 2004 the company has invested heavily in machinery, management infrastructure and employees which has led to an increase in its manufacturing footprint from 6000 sq ft to 25,000 sq ft. This has enabled the company to meet the ever increasing demands placed upon it by customers and to provide additional services that allows the production of complete preparatory turning operations and the boring & honing of billets up to 300mm diameter and 3 metres in length.

Perfect Bore has operated a fully documented Quality System since 1994 and are fully AS9100/ISO 9001:2008 approved and an SC21 bronze signatory. Whilst recognised as market leaders in gundrilling, deep-hole boring and honing, Perfect Bore also offers Research and Development into one-off prototypes and has a dedicated manufacturing facility to produce high quality volume parts to exacting tolerances if required.



Markets

Aerospace

In the field of major Aerospace component manufacturers, Perfect Bore's name is renowned for quality and on-time delivery. Continual investment gives our customers the confidence to off-load components that have critical geometric ID and OD requirements.

The company is proud to be supporting current Aerospace programs including Dreamliner, A400M, A350 and Rolls Royce Trent Engine; developing parts such as thrust reverser rods, cargo door actuators & trent engine shafts.

Oil & Gas

This field typically involves machining corrosion resistant high temperature alloys such as Inconel, Monel, Hastelloy, Titanium and Stainless Steels. These alloys require specialised drilling techniques and as such Perfect Bore continues to increase its machining capabilities.

Typical components include those for directional drilling, downhole wireline monitoring equipment and subsea manifolds.

Defence

Defence projects often involve prototypes and as such extensive Research & Development work is often undertaken to produce critical forms that can be replicated on the outside giving perfect wall thickness to various classified military applications.

By working with Perfect Bore our clients have seen the benefits of manufacturing prototypes in a cost effective manner.

Power Generation

The company has developed relationships with the NAMRC to provide technological assistance on providing bores over extreme lengths and diameters that have not previously been manufactured. It is also keen to develop partnerships with other alternative energy companies providing bore solutions for other renewable, wind and nuclear applications.

Scientific Instruments

The needs of today's advanced surgical techniques are met by Perfect Bore's ability to Gundrill exotic materials with bores of 2.00 mm diameter or less.

Typical components include cannulated billets with extreme ID to length ratios.

Commercial

Perfect Bore also provides components to support customers in other specialised markets including Commercial Hydraulics, Large Marine and Automotive Diesel Engine, Mining & Rail industries and filtration manufacturers.

Services & Capability

Gundrilling

Blockwork: DRO multi-positional gundrilling capabilities:				
	From	To	Depth	Weight (max)
Large	4mm	32mm	1500mm	1.5 tonne
Mid	3mm	32mm	1000mm	1.0 tonne
Small	1.8mm	25mm	750mm	1.0 tonne
CNC	3mm	25mm	1500mm	5.0 tonne
Centreline Drilling:				
	From	To	Depth	
Twin Spindles (x2)	4mm	30mm	1000mm	
Single Spindles (x4)	4mm	30mm	1500mm	
Small Holes:				
	From	To	Depth	
Twin Spindles (x2)	1.8mm	4mm	500mm	
Single Spindles (x4)	1.8mm	4mm	250mm	

BTA Single Tube Drilling

	From	To	Depth	Weight (max)
Mid	25mm	90mm	2000mm	4.0 tonne
Large	40mm	150mm	3000mm	5.0 tonne

Honing

Horizontal Honing (Temperature controlled horizontal honing bay with the following machines):			
	ID From	ID To	Depth
Powerstroke EC 3500s (x3)	1.5mm	165mm	300mm
Hand Lapping Honing Machines (x 3)	1.5mm	165mm	300mm
Horizontal Honing Machines (x 4)	1.5mm	165mm	300mm

Honing

Continued...			
Tube Honing:			
	ID From	ID To	O/L
Tube Hone (x3)	25mm	340mm	2500mm
	ID From	ID To	Depth
Beamstroker	12mm	250mm	800mm
CV616 Cylinder King	20mm	150mm	230mm
Hydraulic Vertical Hone (x2)	20mm	120mm	1500mm

CNC Turning

	Max Diameter	Length	Weight (max)
Puma 600L (x 2)	600mm	3200mm	5.0 tonne
Puma 400L (x 2)	400mm	2100mm	2.0 tonne
Doosan Dooturn	350mm	550mm	0.5 tonne
Hardinge T42	150mm	325mm	
Harrison Lathe	250mm	1000mm	
XYZ Protum	300mm	2000mm	
Perfect Bore also has a range of manual lathes & mills for bespoke and one-off requirements			

Inspection Facilities (within a fully temperature controlled facility):


- Bore Sizing & Geometry Measurement: mechanical, air & electronic gauging to measure accuracy within 0.001mm
- Portable Faro Arm
- Roundness Measurement: Talyrond TR 252 to measure accuracy within 0.0002mm
- Surface Finish Measurement: Surtronic 3+ (20,000 x magnification surface finish analysis software) to measure accuracy 0.01 Ra (0.4 CLA).
- Concentricity & Wall Thickness Measurement: Ultrasonic wall thickness to measure accuracy within 0.050mm

Research & Development

Perfect Bore Manufacturing Ltd invests heavily in the development of machining capabilities, and continually undertakes pure research on new techniques around its core deep hole processing services. Along with the intention of stretching achievable boundaries, it allows the company to offer true value for money to its customers, with reduced cutting times enabling parts to be manufactured to an acceptable budget.

PBML's technical engineers have extensive experience of international markets and keep themselves up to date with advances in tooling, exploiting years of embedded knowledge to fully utilise the latest deep hole boring techniques. Adapted machinery contributes to making the machining of parts quicker, easier, and in some cases, possible.

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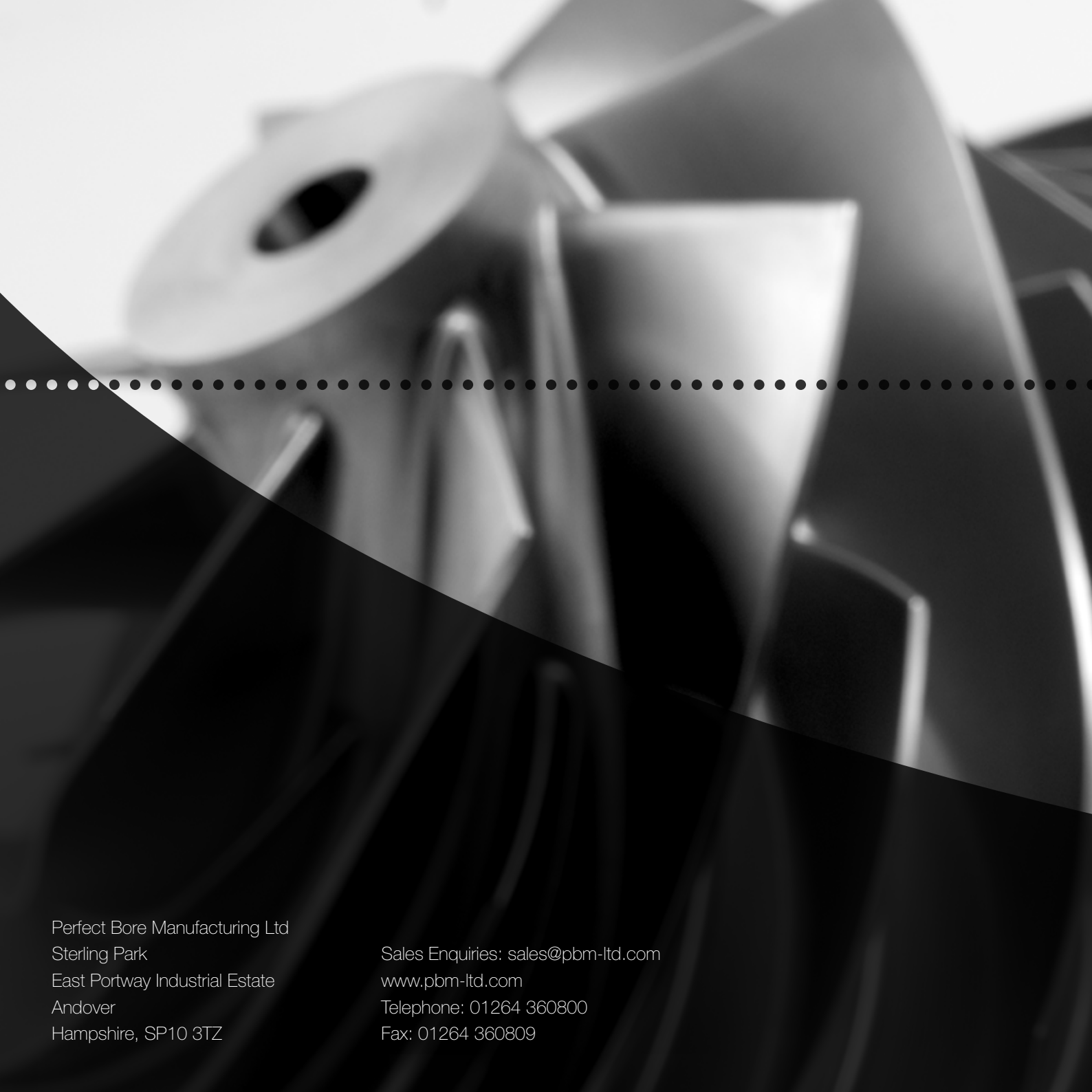
Approvals

Whatever your bore generating or finishing preference, Perfect Bore has the answer. We can now also offer a 'one stop shop' approach for all your engineering needs. Please view our company profile and feel free to arrange a visit or Quality Audit of our works in Andover. Alternatively, our technical sales team would be pleased to visit your site to discuss your requirements.

Approvals held:

AS 9100 & BS EN ISO 9001:2008
Airbus (UK) Ltd 10267
Goodrich 006604
Rolls Royce Sabre 05275
Rolls Royce Nuclear Sector Submarines
Rolls Royce Deutschland Ltd & Co KG
Messier Dowty PRIDE
GE Aviation
BAe/AG/QC/SC/pt 1 10172 Aero
Claverham Limited FHL 100079
Honeywell NGL/QM/2018
Spirit Aviation
Moog
Agusta Westland





Perfect Bore Manufacturing Ltd
Sterling Park
East Portway Industrial Estate
Andover
Hampshire, SP10 3TZ

Sales Enquiries: sales@pbm-ltd.com
www.pbm-ltd.com
Telephone: 01264 360800
Fax: 01264 360809