



## REEKIE MACHINE (SALES)

INCHINNAN BUSINESS PARK  
RENFREW, PA4 9RL

TELEPHONE: 0141 812 0411

FAX: 0141 812 0137

VAT No: GB263624264

email: [info@reekiemachining.co.uk](mailto:info@reekiemachining.co.uk)

web: [www.reekiemachining.co.uk](http://www.reekiemachining.co.uk)



## MOD Surface Ship and Submarine Capability Statement 2019

Reekie Machining have been providing an insitu and offsite machining service to the submarine building and refitting industry since 1965. Our experienced radiation classified operators have carried out almost every conceivable machining operation possible during the trials, manufacture, refit, maintenance of a range of different submarines, from 'O' class to Successor (new Dreadnought) class and on a range of different surface ships, from 'INVINCIBLE' class to 'MCMV'S' HUNT class.

Reekie Machining have extensive experience at all of the dock yards, and regularly work at Faslane and Rosyth, whilst being called in for special projects at Devonport.

In the last couple of years Reekie Machining have been carrying out specialist insitu machining works to support the decommissioning of LUSM Resolution class submarines at Rosyth.

Our experienced operators and advanced machines can significantly reduce the amount of time required for onsite operations. No job is too large, small or technically challenging. We have a wealth of expertise on call 24 hours a day, 365 days a year.

## Submarine New Build, Refit, Maintenance & Decommissioning Experience

Reekie Machining have worked on the following classes of submarine;

Oberon; Dreadnought; Valiant; Churchill; Resolution; Swiftsure; Upholder; Vanguard; Trafalgar, Astute, Dreadnought (Successor)

### Boring & Line Boring

Propulsion shaft housings, hydro-plane bearing housings, coupling bolt holes, man way door hinges, rudder taper boring, rudder stock tubes, hydroplane bores, engine crankshaft bearing housings, hydraulic cylinder mountings, hydraulic and electrical penetrations re-sleeved and re-machined back to original specification, sea-water valve boring and facing (pre and post welding), torpedo tube bore grinding, escape hatch elliptical boring and facing, torpedo tube drains and vents bored and faced, boring periscope bearings

### Drilling, Tapping & Stud Removal

Removal of seized studs, repairs to damaged thread holes, tapping up to M130, single point thread turning up to 300mm +(including periscope housing gland thread), sea-water valve re-tapping, hull pads drilled and tapped, main ballast tank valve seats re-drilled and tapped, hydraulic and electrical penetrations re-drilled and tapped(inboard and outboard), air passage connectors

### Facing & Grinding

Pressure hull inserts, pipework flanges 25mm nb and upwards, main ballast tank valve seats faced and ground, hydraulic and electrical penetrations, torpedo tube faces, steam generator flanges, bursting discs, hull pads, facing/boring of exhaust hull valves, facing boring drilling various valves

# **REEKIE MACHINING**

## **Shaft Turning**

Motor/gearbox shaft turning, tailshaft liner grooving

## **Milling**

Hydroplane mating faces and keyways, taper rudder housing keyways, motor/compressor mounting pads, shaft keyway cutting, machining sealing faces for hatches, milling and or drilling engine/gearbox seats

## **Laser alignment**

Flatness surveys, shaft alignment, bore alignment.

## **Other**

Various work on SSE's including the development of a bespoke machine for machining out SEE cusps, machining of torpedo tubes, work in reactor tunnel, work in RC, including on SG's

## **Naval Surface Shift – New Build & Refit Experience**

Reekie Machining have worked on the following classes of ship; Invincible aircraft carriers; Sheffield Type 42 (city); HMS Ocean amphibious; Albion; Duke class Type 23; Daring Type 45; Hunt mine countermeasures; River

## **Boring & Line Boring**

Stern Tubes, A-Frames, P-Brackets, rudder stock bearing housings, thruster housings, stabiliser housings, coupling bolt holes, engine crankshaft bearing housings, hydraulic cylinder mountings, rudder palm bolts, bow, stern and side ramp hinges, Tyne Volute

## **Drilling, Tapping & Stud Removal**

Removal of seized, studs, repairs to tapped holes, tapping up to M100, single point thread turning up to 300mmØ, hull pads drilled and tapped, rotary vane units re-drilled, rope guide holes, re-tapped, weapons seats drilled and tapped, flight deck awning stanchion holes

## **Facing & Grinding**

Weapons Seats GPMG, Miniguns, 20 mm/85 GAM-BO1, 30mm, Vulcan Phalanx, 4.5 inch Mk 8 naval gun, stws, etc.), sea tube flange faces (including those extremely difficult to access), pipework flanges 25mm nb and upwards, stern tube faces, rudder bearing housing faces, hull pads, vessel/tank flanges, radar mast seats, optical direction finder seats, missile "chimney pots"

## **Shaft Turning**

Rudder stocks, liners removed and replaced, motor/gearbox shaft turning, Prop shaft bearing diameters

## **Milling**

Rudder stock keyways, motor/compressor/generator mounting pads, shaft keyway cutting, Bow Dome Sonar Sole plate, Boat Davit Deck Pads, crane seats

## **Seat Machining**

Exocet pads, DLB/DLH launcher seats, Phalanx seats, general weapons seats, etc, milling and or drilling engine/gearbox seats, flange facing and or milling of various radar seats from small to LRR and MFR, flange facing and or milling of various sizes of gun seats, from GPMG thru 20mm, 30mm,

# REEKIE MACHINING

Vulcan Phalanx, 4.5” gun seats, tracker seats, CIWS Goalkeeper, SSDT, PDLT, EOD, Fairlead Seat, Sonar winch seat, Sonar Dome seat

## Laser alignment

Flatness surveys on weapons seats etc, shaft alignment, bore alignment.

## Spark Erosion

Removal of broken tooling, taps, studs

## Other – Type 23 Refit Support

Over a period of about fifteen years Reekie Machining supported (essentially) exclusively the Type 23 refits at Rosyth Dockyard and carried out a significant amount of work, including but not limited to work on;

HMS Iron Duke (2001), HMS Montrose (2003), HMS Northumberland (2004), HMS Westminster (2004), HMS Somerset (2006), HMS St. Albans (2007), HMS Liverpool (2007), HMS Sutherland (2008), HMS Campbeltown (2009), HMS Monmouth (2002), HMS Argyll (2010), HMS Kent (2011), HMS Portland (2012)

## Dock Yard Infrastructure

Reekie Machining have supported various insitu machining works, including milling of faces, drilling and tapping, drilling dowel holes on the work on 9 dock RAH and dock side rails and the 14 dock RAH and LT rails, as well as carrying out machining repairs to lock gates and other dock yard cranes.

## Record of Work Since 2003

The spread sheet “Naval Surface Ship and Submarine Work.xlsx” details all of the work carried out by Reekie Machining for Devonport, Rosyth and Faslane since 2003 (which is the year our existing production database commenced). We have files going back further than 2003 and can provide details of other specific jobs on request. We keep detailed records of all of the projects we are involved within and in conjunction with our database can quickly access details of any previous projects carried out.

REEKIE MACHINING							
Our Sales Order Number	Customer	Customer Contact	Customer Order Number	Sales Order Date	Price	Job Description	
9396	Babcock Marine (Rosyth) Ltd	Michael Watts		29/04/2019	4	18,519	Machining two Lateral Support Pads each legs can assembly
9370	Babcock Marine (Clyde) Ltd	Scott Mackintosh		14/09/2019	E	6,719	HMS Astute - Mainway Door Stud Removal
9356	Babcock Marine (Clyde) Ltd	Lawrence/Dino Ault		07/06/2019	E	3,390	HMS 11 Dowel hole Drilling Ø12 in shutterwheels x 28-off
9343	Babcock Marine (Clyde) Ltd	Chris Burt	68902-31	03/06/2019	E	4,154	Postload Bay 1 Detrit Block Survey
9340	Babcock Marine (Clyde) Ltd	Daniel McDonald	674896-31 Line 2	31/05/2019	E	3,434	HMS Astute - Dip Tank Plug - Drill out x 2
9328	Babcock Marine (Clyde) Ltd	Michael Craig		17/05/2019	E	290	SOCKET HEAD CAP SCREW M10 X 4E MM LONG
9320	Babcock Marine (Clyde) Ltd	Michael Craig		17/05/2019	E	-	M10-SOCKET HEAD CAPSCREW X 45LONG
9319	Babcock Marine (Clyde) Ltd	Michael Craig	678740-31	17/05/2019	E	1,774	HMS A Drill Cut Sheared Stud on L1/C
9317	Babcock Marine (Devonport) Ltd	Brian Carmo MCPS, CQI 6519-14-03		16/05/2019	E	8,519	14 Dock RAH-LT rails, insitu machining top face of two rails, one part, one stb
9316	Babcock Marine (Clyde) Ltd	David Hodgkinson	651370	16/05/2019	E	118	Use of Torque Equipment capable of applying a torque setting of 9700Nm to be delivered to HMS Clyde
9285	Babcock Marine (Rosyth) Ltd	Lee McLary	73-0C23857 Line	26/04/2019	E	12,200	QCIC dishing T17, Eddy Plate drilling
9281	Babcock Marine (Clyde) Ltd	Donald Wilson	675909-31 Rse 1	25/04/2019	E	1,150	Synchrofit seal/water pump M20 stud
9278	Babcock Marine (Rosyth) Ltd	Kevin Thomson	73-3C23857	24/04/2019	E	8,530	HMS Queen Elizabeth - Refitwork 3-off Double Flange after A&S repair

Extract of The spread sheet “Naval Surface Ship and Submarine Work.xlsx”

# REEKIE MACHINING

## Recent Projects at Devonport

### 2018-2019 14 Dock RAH, Long Travel (LT) Rail Defect Rectification Works

Our Ref: SO8825, SO9076, SO9317 Contact: Brian Curno

This scope of work was a follow on from a previous related scope of work carried out in 2016 where Reekie Machining carried out various insitu machining to support the build of the 14 dock RAH including; laser tracker surveys, Seismic Clip Installation, East Gable Column machining and LLTT I beam drilling.

The Rail Defect Rectification Works Reekie Machining to carry out various scopes of work (CAD screen shots of some of the set ups are shown to the right) including;

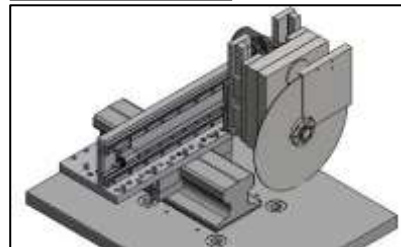
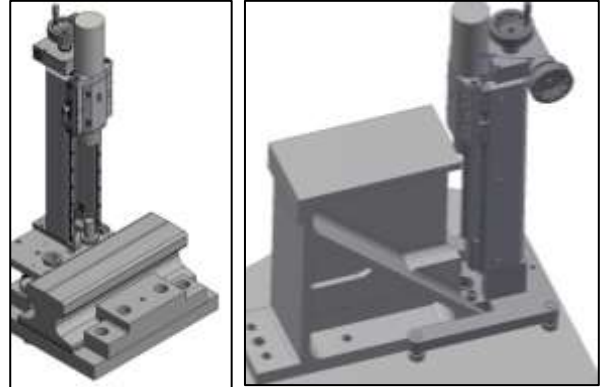
Rail Clip Parallel Pin removal from Babcock specified LT Rail Clips

Re-drilling and reaming of rail clip dowel holes after Babcock had repositioned rails

Drilling and Doweling of Long Travel Buffer Stops

LT (Long Travel) rail butt joint - cold cutting of 4mm wide slot through 150 high x 220 wide rails, where two ends of rail meet to form one longer rail, for two long rails

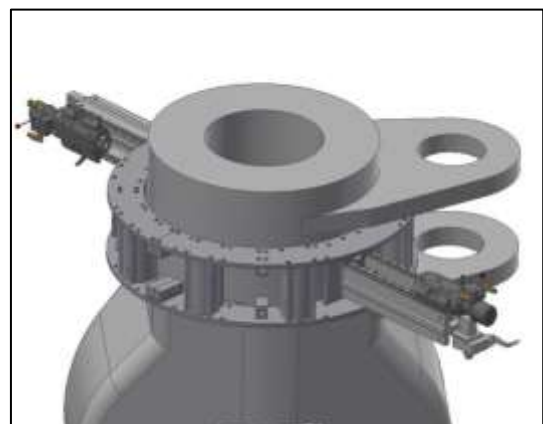
Machining top face of two rails, one North, one South, both sides of joint to remove the step between the rails and ensure a smooth transition



### 2018-2019 HMS Vanguard - Rudder Cotter Pin Removal

Our Ref: SO8825, SO9317 Contact: Mike Ellis, Michelle Sprigg

To allow the removal of the rudder stock, two cotter pins - each 265mm high x 70mm wide x 1030/1120mm long and tapering along one edge - needed to be machined out. Due to the geometry of the yoke there was no easy way of mounting equipment and more importantly no datum's to ensure the boring machines were set up true to the cotter pin centreline. The set up was essential to ensure the yoke remained untouched whilst machining away the cotter pin. Reekie Machining created a solution using a split ring jig that was precision machined in our machine shop on our horizontal borer, so that when set to end of each cotter pin, the cotter pins could be successfully bored out to a shell without touching the yoke, and therefore facilitate removal.



## **REEKIE MACHINING**

**2018, HMS Vanguard, SoR622, PHG Darlek (PEN225), Insitu machining of bore and face pre and post weld & PH6 5/3, PHG13/9, PHG 13/20**

Our Ref: SO9014      Contact: Michelle Sprigg

These critical penetrations require weld repair due to corrosion and porosity. The repair method is weld up the damaged areas and then machine back to size after welding. This job is particularly challenging due to tight space constraints around the component, due to the lack of a flat face to mount equipment to and also to be able to achieve very tight machining tolerances with very limited access to see the cut. Our solution featured a precision machined jig that screwed onto the existing thread and used this to set the centreline of our machining equipment true to the component centreline. The face and bore were then machined in a single set up using one of our precision facing and boring heads.

