

# AEROSPACE SPECIAL



**LOMAS**  
CUTTING TOOLS

# LOMAS

[www.lomas.co.uk](http://www.lomas.co.uk)



Tools can be manufactured in 3 material choices for use on composites:

- Solid Tungsten Carbide Tooling
- CVD Diamond Coated Solid Tungsten Carbide
- Polycrystalline Diamond (PCD)

## COMPOSITE TOOLS

**LOMAS** design and manufacture a wide range of Special Solid Carbide and PCD tooling for various composite and exotic aerospace materials at our manufacturing facility in Sheffield, England.

All LOMAS tooling is fully CNC ground and custom built to our customers' own specifications / prints. All tools can be manufactured to include any of the following:

- Special Cutting and/or Shank Diameters
- Custom Shanks (Flatted / Threaded / Precision / Heat Shrink)
- Special Cutting Length and/or Overall Lengths
- Corner Radius or Corner Chamfer Configurations
- Special Tight Tolerances
- Internal Coolant Feed
- Special Tool - CVD Coatings

LOMAS provide Special Grades of carbides, offering better abrasion resistance and increased tool hardness to withstand high temperatures when cutting. CVD (Chemical Vapour Desposition) Diamond coatings are also available which reduce heat and friction at the cutting edge, produce higher quality surface finish and can increase tool life by as much as ten times.

We also offer our own Special Drills designed for hand drilling, with specific cutting tool geometries for CFRP, both with excellent entrance and exit hole quality and increased tool life and feed rates.

Listed below are some of our most common drill designs used in many various aerospace applications:

**Dagger Drills** - designed to produce delamination free holes in graphite materials and/or graphite / aluminium material stacks. These drills can be re-ground repeatedly without thinning the point.

**Tapered "One-Shot" Drill Reamers** - with straight or spiral flutes for hand-held drilling applications (through bushings) or with controlled feed / speed drill motors. Developed for drilling fibreglass and excellent for drilling graphite / composites etc with a self-centering point design.

**Radius Point Drills** - produce very accurate holes in composite materials without delamination.

**Parabolic Flute Drills** - recommended for "deep hole" drilling in non-ferrous materials such as aluminium, fibreglass, graphite, plastics.

**8 Facet Point** - this geometry is designed for high production delamination-free holes in graphite and fibreglass materials.

**Kevlar "Brad-Point"** - manufactured with a unique drill geometry designed to produce "Fuzz-free" holes in Kevlar (Aramid fibre) materials.

**Double Margin** - with special composite drill points these work extremely well on composite / metal "stacks".

**Routers** - solid carbide and PCD materials supplied in any format from single flute up to ten different flute variants.





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Any size or combination of diameter / pilot are available with a **fast AOG turnaround**

## LOMAS AIRCRAFT REAMERS (SERIES 236)

For easy ordering please specify: LOM236 - Reaming Dia - Pilot - Type 'S'  
 e.g. LOM236-2500-2340-S  
 = 0.2500" Reamer – 0.2340" Pilot – Standard Type



### TYPE 'S' (STANDARD LENGTH)

These are our standard range of Aircraft Reamer manufactured in M42 Cobalt Material with reduced shanks for easy chucking. Available in all reaming / pilot diameter configuration with fully hardened / ground blanks in stock for a quick turnaround.

For easy ordering please specify:  
 LOM236 - Reaming Dia - Pilot - Type 'T'  
 e.g. LOM236-2500-2340-T  
 = 0.2500" Reamer – 0.2340" Pilot – Threaded Shank



### TYPE 'T' (THREADED SHANK)

Lomas Threaded Shank Pilot Reamers are manufactured in M42 to the same high specification as Type "S". Manufactured with 1/4-28 UNF Class A threaded shanks for accurate reaming in limited space applications. Other threaded shank sizes / styles available on request.

For easy ordering please specify:  
 LOM236 - Reaming Dia - Pilot - Type 'L' - Flute Style  
 e.g. LOM236-7500-7340-L-SF (Straight Flute) or SP (Spiral Flute)  
 = 0.7500" Reamer – 0.7340" Pilot – Long Series – Flute Style



### TYPE 'L' (LONG SERIES)

Type "L" long series pilot reamers have a standard total length of 6" (150mm) with 4" (100mm) Flute length and are designed to produce larger diameter close tolerance holes or for longer reach applications. Long Series reamers are available with fully ground straight or spiral flutes and max. 0.500" (12.7mm) diameter shanks.

#### LOMAS PILOT REAMERS

LOMAS Aircraft Pilot Reamers (Series 236) have been specifically designed in conjunction with a major Aircraft Company for all types of aircraft manufacture and repair.

All Series 236 reamers are suitable for any requirement where a precision interference / clearance fit hole for a close tolerance fastener is desired such as a Hi-Lok or NAS Close Tolerance Bolts.

All LOMAS Series 236 pilot reamers are manufactured in M42 (8% Cobalt) material which is suitable for all aerospace material grades of titanium and steel, and will easily ream through aluminium.

LOMAS Series 236 Pilot reamers are all flute ground and cylindrical ground between centres with precision ground centre holes producing diameters with consistent concentricity / accuracy.

#### LOMAS (Series 236) Aircraft Pilot Reamer ADVANTAGES:

- Manufactured in M42 (8% Cobalt Material)
- Fully ground / highly polished flutes
- Ground between centres
- Solid pilot / guides for accurate hole location
- Reduced shanks for easy chucking
- Precision ground (Tri-Flats) available
- Fast turnaround / AOG availability
- Any combination of diameter / pilot are available

LOMAS manufacture all types of reamers / piloted reamers in all grades of HSS / Carbide Tipped / Solid Carbide to customers' own specifications / design / drawing.

LOMAS offer reamers for use in composite and carbon fibre materials. These reamers are available in Solid Tungsten Carbide material with all types of tool coatings available.

# SPECIAL

Automated drilling equipment processes require quality cutting tools that can provide the highest accuracy, maintaining hole diameter, total indicated run out and surface finish (CPK) with the longest possible tool life cycles.



## ADVANCED DRILLING TOOLS

LOMAS manufacture a complete range of **Special Tooling for Automated Drilling Equipment (ADE) processes.**

LOMAS Tooling is available in Solid Tungsten Carbide / PCD and High Cobalt Grades of HSS. All are available with through Coolant Feed Holes and various Tool Coatings including CVD Diamond. All cutters are manufactured with special CNC grinding geometry, polished flutes and very high drill point concentricity.

LOMAS currently runs test / trial tooling with many of the world's leading ADE manufacturers. We can design all variants of Special Drills and Drill Countersink tools to machine - CFRP, Aluminium, Titanium and combination material stacks CFRP / Alum, CFRP / Titanium for power-feed drilling / reaming / countersinking applications.

Many power-feed ADE applications require speciality shanks. LOMAS tools are available with any style of shank design requested:

- Tri-Flats / Tanged
- Threaded Shank Tooling
- Hydraulic / Precision
- Heat Shrink

**Spacematic and Drivematic Tooling** - (Automatic / semi-automatic drill riveters) – drilling and countersinking of all types of rivet / bolt holes are achieved in one operation. All cutter diameters and tolerances have been designed to meet requirements of all riveting specifications.

**Nutplate Drill & Countersink Tools** - CNC ground and used in conjunction with Nutplate Drill motors.

**Quackenbush Tooling** - all types of tools used in controlled feed/speed drill motors.

**Taper-lok Drill, Ream & Countersink Cutters** - these special tools consist of a solid pilot and three flutes developed especially to produce finished holes in a single operation: reaming, countersink and producing the blend radius for taper-lok fasteners.





Our Technical Customer Service  
Department are on hand to  
respond to your needs -

**Tel: +44(0)114 288 9444**



## MICRO-STOP TOOLS

LOMAS are world leaders and a prime industry source for all types of Micro-Stop / Threaded Shank tooling used by airframe builders and maintenance repair facilities around the world.

Our product line includes all variants of Countersinks / Counterbores / Spotfacers / Radius Cutters / Drills / Reamers / Drill Reamers etc. LOMAS tools can be manufactured in all grades of Cobalt Material HSS, Solid Carbide, Carbide Tipped and Polycrystalline Diamond (PCD).

LOMAS Micro-Stop tools are fully ground on all diameters / flutes and seating angles and are available with all types of standard and special ground threads. Cutters are available with special diameters / countersink angles and corner radius to customers' specifications.

LOMAS manufacture PCD Countersinks for use on composite materials and Carbon Fibre Reinforced Plastics (CFRP). High quality PCD inserts provide a superior surface finish to composite materials requiring minimal effort from the operator. The superior characteristics of PCD ensure the extended tool life of these cutters. Special Countersinks for 'Kevlar' (Aramid Fibre) materials with unique cutter geometry are also available. These tools provide excellent surface finish and prevent the tearing of fibres in the component material.

LOMAS also supply very high quality Micro-Stop Cages in stainless steel used by the world's leading aerospace companies.





# LOMAS Engineering Limited

Lomas Engineering is a specialist manufacturer of cutting tools to the Aerospace Industry and its Maintenance Sector, meeting all their quality control procedures. Formed in 1978, utilising over forty years experience of specialist cutting tool manufacture, enabling the company to offer cutting tools of the highest quality and reliability.

Our policy of continual investment in state-of-the-art manufacturing methods, undertaken to our own exacting quality control system and supported by ISO 9001:2000 certification, together with a programme of pure and applied research assures strict compliance to the customers' requirements for special tooling.

Lomas are specialists in short-run batches in all types of materials for standard tooling or from customers' drawings, samples or specifications.

Our Technical Customer Service Department are on hand to respond to your needs.

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