

HISTORY: DEW Engineering is a Canadian-owned defence contracting firm founded in 1978 to provide vehicle systems engineering capability to the Department of National Defence (DND).

CAPABILITY: DEW Engineering is primarily involved with defence contracting in Canada. DEW provides a full range of engineering services which includes - design, prototype and development, test and evaluation; bilingual technical manuals and level III Technical Data packages to DND specifications. DEW has a fully equipped metal fabrication and manufacturing facility for the manufacture or special aluminum communication shelters and SMP trailers. Most of these systems are designed, developed and manufactured by DEW.

AVERAGE WORK FORCE: Engineers - 12
Others - 45

GROSS SALES: 1986 - \$4.0M
1987 - \$6.5M

PLANT SIZE: 40,000 Sq Ft (plus a secure 11 acre site)

EQUIPMENT: Equipment includes: Wang OIS complete with type-setter for technical manuals and all production equipment required to manufacture diverse products to DND specifications from aluminum communications shelters to heavy duty trailers.

EXPERIENCE: Present customers include Department of National Defence and Royal Canadian Mounted Police.

KEYWORDS: Vehicle Systems Engineering; Military Pattern Trailers; Communications Shelters; Material Handling Trailers; Military Vehicle Kits (Special); Aircraft Ground Support Equipment; NBC Decontamination Systems; Field Generators; Engineering Services; Contract Management Services.

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DIEMASTER TOOL Inc

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HISTORY: Diemaster is a Canadian-owned company that has been in business for over 15 years.

CAPABILITY: Diemaster is a precision engineering/machining firm specializing in machining to aerospace, military and nuclear standards, jig boring, CNC machining, EDM machining, turning, and milling. A major product line is the manufacture of gas turbine engine shafts. Diemaster performs electron beam welding of critical component parts. They perform stamping operations from 16 to 500 metric tons. Diemaster also designs and fabricates production tooling, special purpose machines, jigs, fixtures, gauges, and dies. Their quality control meets CSA-Z-299.3, AQAP-4, MIL-Q-9858A and MIL-I-45208A.

AVERAGE WORK FORCE: Total - 160

GROSS SALES: 1986 - \$8.6M
1987 - \$9.2M

PLANT SIZE: 66,000 Sq Ft

EQUIPMENT: NC & CNC machining centers, and computing centers. Complete CAD/CAM capability and small to large size co-ordinate measuring machine capacity. Other typical equipment includes mills, grinders, borers, milling machines, drills, lathes, pantograph, presses, cutting, finishing and inspection equipment.

EXPERIENCE: Diemaster customers include SPAR, Argotech, Textron Lycoming, Sanders' Associates, Dupont, Bombardier, IBM, McDonnell Douglas, Pratt & Whitney, Xerox, Rockwell International, RCA and many more well known companies. Products to these companies have included aircraft engine parts, fuel tanks, critical components for aircraft navigation systems, components for nuclear industry, dies, gauges, test and production centers, and stampings.

KEYWORDS: Boring; CNC Machining; Die Fabrication; Gauges; Machining; Milling; Precision Machining; Stamping; Turning.

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DIFFRACTO Ltd

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HISTORY: Diffracto Ltd was incorporated in 1973 as an off-shoot of work done at the University of Windsor. The company is Canadian controlled with a minority interest owned by General Motors of Canada and Otto Wolff AG of Cologne, Germany. They also have a US subsidiary, Diffracto Ltd, located at Two Northfield Plaza, Suite #416, 5700 Crooks Road, Troy, Michigan, 48098, (313) 828-7370. Most of the business of the company is conducted in the US through the US subsidiary which largely acts as a sales and service operation.

CAPABILITY: Diffracto has been a pioneer in the application of electro-optical inspection equipment to the manufacturing industry, primarily automotive, but also including nuclear, turbine engine, bearings, ordnance, and the like. These electro-optical units were originally developed on a custom basis, but are currently standardized. Many are finding their way into robotic applications for guidance.

Diffracto currently produces a variety of standard sensor products. In addition are certain special machines, the most predominant example is the Programmable Airfoil Contouring System (PACS) for turbine blade inspection. The PACS was originally developed as a joint Canadian/US Defense Development Sharing project with the USAF (AFWAL/MLTM), General Electric, and Diffracto. This particular project has led to the sales of ten such machines to manufacturers of blades in the US and Canada, and is subject of intense current interest relative to both the inspection of new and rework blades. A second major area is dimensional and flaw inspection of large objects such as car bodies and aircraft panels.

Diffracto has devoted considerable effort to R&D activities and has received support in this area from the National Research Council of Canada, and the Department of Industry, Trade and Commerce. Current projects exist in the following areas:

- Surface flaw detection on large panels
- CMM and Robot probe development - miniaturized light section sensors
- Vision sensors for machine tool feedback

Major applications for this type equipment within private industry and possibly within the USAF are as follows:

- Inspection and automatic adaptive control of turbine blade manufacture and rework.
- Inspection of turbine assemblies and components. For example, they have projects underway with General Electric for inspection of rotor shaft internal defects. Previous projects were concerned with tip clearance on rotors and for the automatic ultrasonic inspection of disks (laser/optical sensor control portion).
- Air frames and components for dimensional integrity and surface defect inspection, particularly in composites.
- Manufacturing Technology - Applications include the inspection of parts on flexible machining centers and the inspection of tools in the changers.
- Ordnance - Diffracto inspection systems can be used for the inspection of ordnance. These normally high volume, high tolerance items require both dimensional and defect inspection, and are therefore ideally suited for electro-optical inspection. Sensors exist for large caliber barrel straightness determination. Barrel bore dimensions and flaws are other areas