

QSINE HYDRAULIC MANIFOLD AND INTEGRATED CIRCUIT DESIGN & MANUFACTURING SERVICE

Qsine Corporation Limited now offers a comprehensive service for hydraulic manifold design and manufacturing.

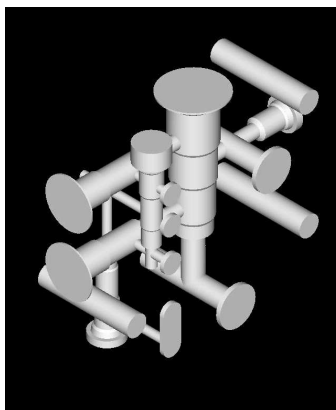
At Qsine, we have been designing and building custom manifolds and integrated circuits since 1988. Over the years we have evolved from 2D CAD to 3D and we have custom programmed our CAD system to help us quickly layout, verify and detail our designs. In the spring of 2002, we added a modern CNC machining center so we could perform the manufacturing in-house.



Our manifold/integrated circuit service includes:

- Circuit Conception
- Schematic Creation
- 3D Manifold Layout
- Mfg. Drawing Creation
- Bill of Materials/Purchasing Control Documentation
- Parts and Service Documentation
- CNC Tool Paths *
- CNC Prototype & Small Run Manufacturing

* Our tool paths will work on Okuma OSP700M controls



We can manufacture manifolds from aluminum (3000 psi maximum) or ductile iron (5000 psi maximum). Currently, we are well equipped with SAE O-Ring Boss tools (-4 to -20) and industry pseudo-standard "common-cavity" tools (all standards and a few specials from C4-2 to C16-4). Generally, prototypes can be turned around from design to finished part in less than 2 weeks.

Our focus is on prototypes and small, batch manufacturing runs. It is our goal to keep the lead times short and we will not run production quantities that will occupy the machining center for more than 5 days at a time. We can refer you to a number of manufacturers that will be pleased to accommodate the larger quantities.

In order to offer a quick delivery, prototype, manufacturing service, we have invested heavily and are continuing to invest in tools that aid rapid setup and tool path code generation. We are currently developing our own CAM software that is tailored specifically for the manufacturing needs of hydraulic manifolds. We are hoping to put the software into production in the late summer of 2003.



QSINE CORPORATION LIMITED

HYDRAULIC, ELECTRONIC AND MACHINE DESIGN
3250 - 46 AVENUE S. E. • CALGARY, ALBERTA, CANADA • T2B 3K7
TELEPHONE: (403) 248-9066 FACSIMILE:(403) 273-8133

Another tool that was developed by Qsine, in order to improve the quality of our manifold manufacturing service, is the engraving tool shown to the left. We have modified a pneumatic engraving pencil so that it can be carried by the machining center to permanently mark port identifications, part numbers and even logos.

The machining center also had to be modified to effectively run the engraver. We developed a high-speed bearing/seal to port compressed air down the spindle to the engraver. Further, we have developed our own CAM software to generate the CNC tool paths to write the letters and logos.

A few samples of parts built on our CNC are shown below:

