

# Gatco, Inc.

## GFA Series Precision Machine Tool Housings Used to Support Gatco, Inc. Cartridge Bushings

Data Sheet 1008

### Gatco, Inc. Support Housings

Gatco, Inc. introduces precision housings to support Gatco's quick change bushing cartridges. These units are normally used in machine tool applications, but can be adapted for any operation where a precision bearing support is required.



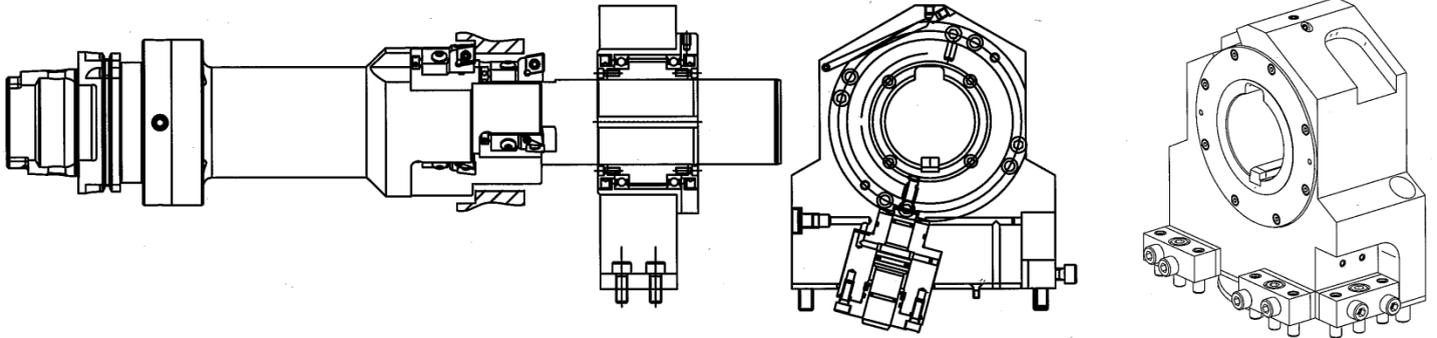
In the evolution of machining technology the automotive industry has been changing their machining practices from dedicated engine lines (transfer lines) to flexible lines. Flexible lines allow the customer to change parts or dimensions at a relatively quick speed and lower cost. Using GFA fixture assemblies allows the user to change the line bar support quickly.

If the machine tool design dictates, Gatco can provide housings built up with detail parts as required using GFA fixture assemblies. Contact us with your needs and we can provide a no-obligation design and review of your concept requirement.

### Benefits of Gatco's Bushings with Housings

- Are designed to accept Gatco quick change bushings, but can be adapted to many applications where bearing support is critical.
- Supports the cartridge bushing and the operation's static and dynamic loads.
- Protects the cartridge bushing from the egress of contaminants into the bushing.
- Provides a means of transmitting lubrication into the cartridge bushing.
- Provides a means of transmitting pressurized air to the seals.
- Fast replacement of the bushing cartridge, leaving the bearing housing as is, not requiring alignment.
- Lockout the bushing to maintain radial orientation to the boring bar. Common methods include mechanical, hydraulic and spring loaded lock out.

# Support Housing to Accept Gatco Rotary Bushings



One operation that still requires dedicated machining stations and is not always adaptable to flexible lines is machining engine block cam and crank bores. Gatco continues to provide the industry with cartridge style rotary bushings as well as bushing support housings to hold the Gatco bushings during line boring operations.

An extended line bar normally deflects due to its excessive length and weight. By incorporating the Gatco bushing and housing two problems are eliminated: 1) The Gatco precision line bore bushing provides bar support as well as holding runout and alignment requirements. 2) Quite often in line boring engine blocks, the Gatco assembly is located between the bulkheads. This method dramatically shortens the overall length of the line bar, significantly stiffening the bar. By placing the Gatco cartridge and housing between the bulkheads provides maximum support and minimum runout specification at the part.

One concern that Gatco has solved is timing the boring bar cartridges to the clearance slot in the bushing. Gatco offers several lockout methods for the bushing. These lockouts engage when the spindle stops and disengage when the line bar enters the bushing. Some of the accepted methods for timing the bar to the bushing are:

- Hydraulic Operated
- Mechanical
- Splined Liner
- Spring Actuated
- Bayonet lead on bar

Support housings are designed specifically for the machine in which they will be mounted. Special attention is given to the critical dimensions as well as part clearance. In line boring it is critical to maintain the specification dictated such as size, parallelism, squareness, and roundness of the bore, to name a few.

One area that Gatco has identified and is a chronic problem, is when the housing is built with detailed parts. The customer has two choices when the bearing supports reach their fatigue life. 1) The complete assembly can be removed and rebuilt in the tool room. The problem arises when the unit has to be re-installed on the machine. This is where the cost of downtime really compounds itself trying to re-align the bearing fixture to the spindle and locating pads. The most effective way to achieve the alignment is using laser alignment equipment. 2) The second option is worse than removing the fixture. Attempts have been made to rebuild the bearing housings on the floor. Aside from the biggest culprit "contamination" the maintenance person has to climb into the machine to reassemble it while trying to hold bearing pre-loads and extremely tight runout tolerances. This is why the answer is Gatco quick change bushing cartridges with Gatco's support housings. When the bushing reaches its fatigue life simply un-bolt the cartridge bushing and slide out as one piece, then simply slide the new one in and bolt in position. No alignment is necessary because Gatco's support housing will maintain the alignment position.

Contact Gatco for information on our ever-expanding line of products used in the machine tool industry.