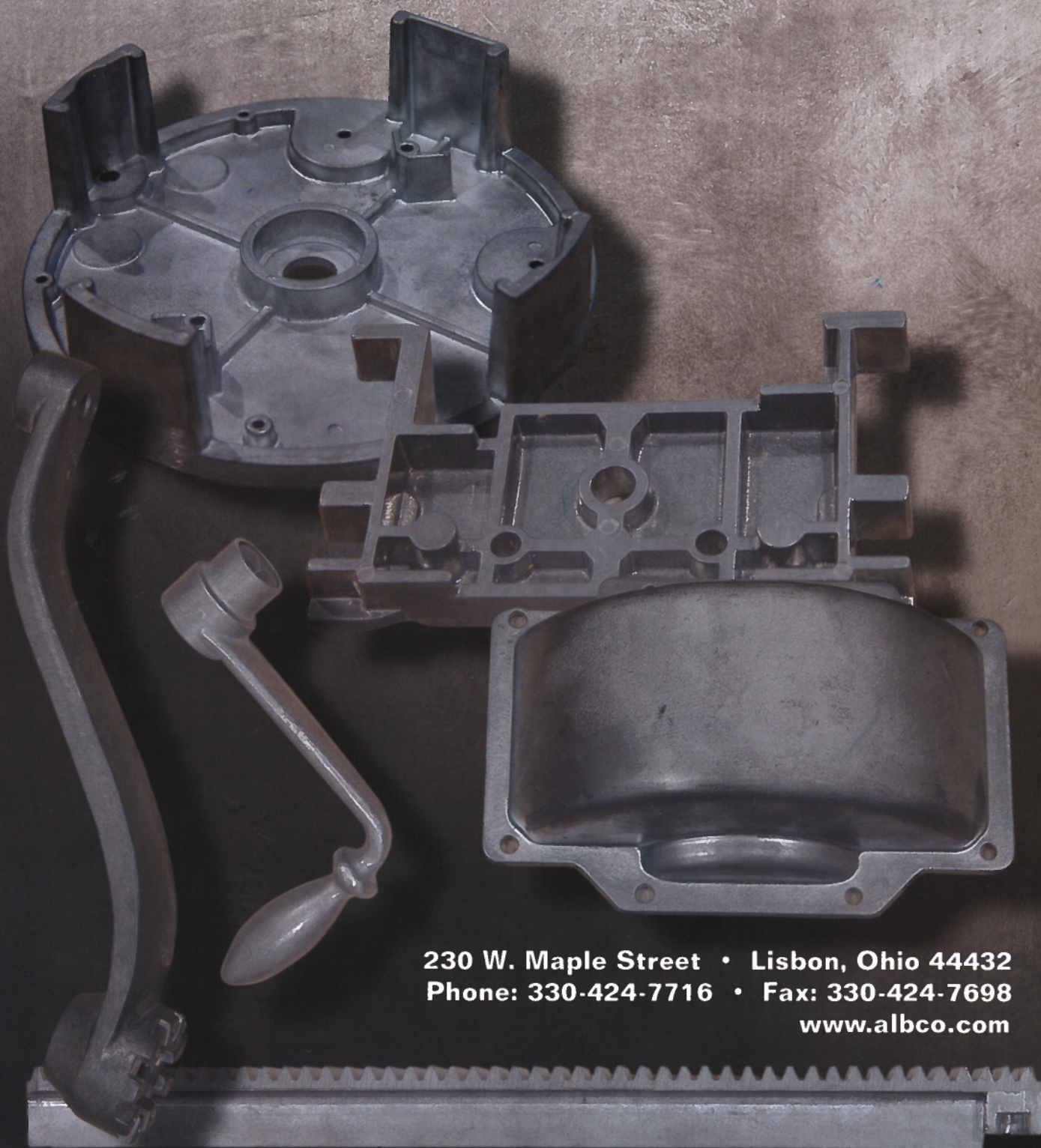
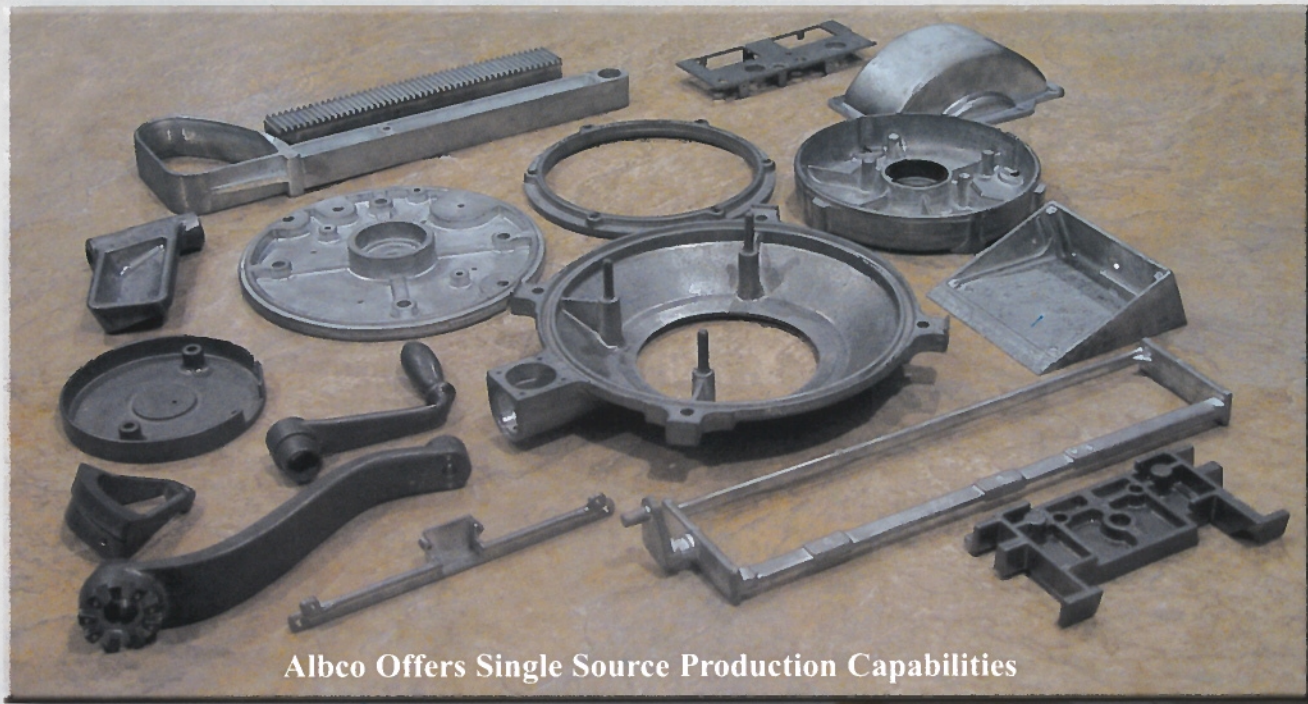


ALBCO FOUNDRY

Discover the Albco Advantage with Graphite Permanent Mold Castings



230 W. Maple Street • Lisbon, Ohio 44432
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www.albco.com

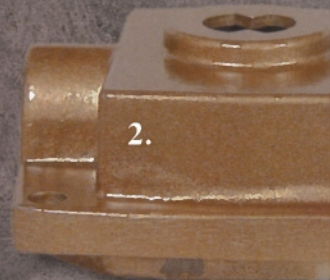


Albco Offers Single Source Production Capabilities

Albco offers a unique process and material combination. The process of graphite permanent molding coupled with the versatile family of ZA alloys makes for short lead times, precision cast tolerances, excellent detail and superior surface finish. ZA12 has replaced aluminum, brass, and cast iron castings as well as steel fabrications in many applications. Their unique bearing qualities can eliminate the need for pressed in bushings. Because of ZA12's fluidity, raised graphics, artwork, and company logos can be cast in fine detail.



1. Powder Coated, Machined, & Assembled
2. Painted with Eight Machining Operations
3. Brass Plated
4. CNC Machined & Yellow Chromate
5. Cast-in Steel Pin & Painted



QUALITY, SERVICE & VALUE

ZA12 vs. Cast Iron

ZA12 weighs the same as cast iron and has roughly the same strength. ZA12 machines three times easier than cast iron allowing for faster cycle times and reduced tool wear.

ZA12 vs. Aluminum

ZA12, as cast, is harder, stronger, and heavier than sand and die cast aluminums. ZA alloys have inherent bearing properties and are being used as direct substitutes for large bronze industrial bushings and bearings.

ZA Applications and Technical Assistance

Through Albco's national team of sales engineers, we will be able to quickly address technical questions in person, by phone or via the Internet. Competent technical assistance is

available for a confidential value analysis of potential ZA applications. We will advise on Alloy selection and processing.

Precision cast tolerances

Tolerances can be held to $\pm .005$ " for the first inch of dimension in any direction with an added $\pm .002$ " for each additional inch. Two degrees of draft is desired for inside and outside surfaces perpendicular to the parting line and are in addition to the normal tolerance. Closer tolerances and smaller draft angles can be held when required.

Mold Making and Prototypes

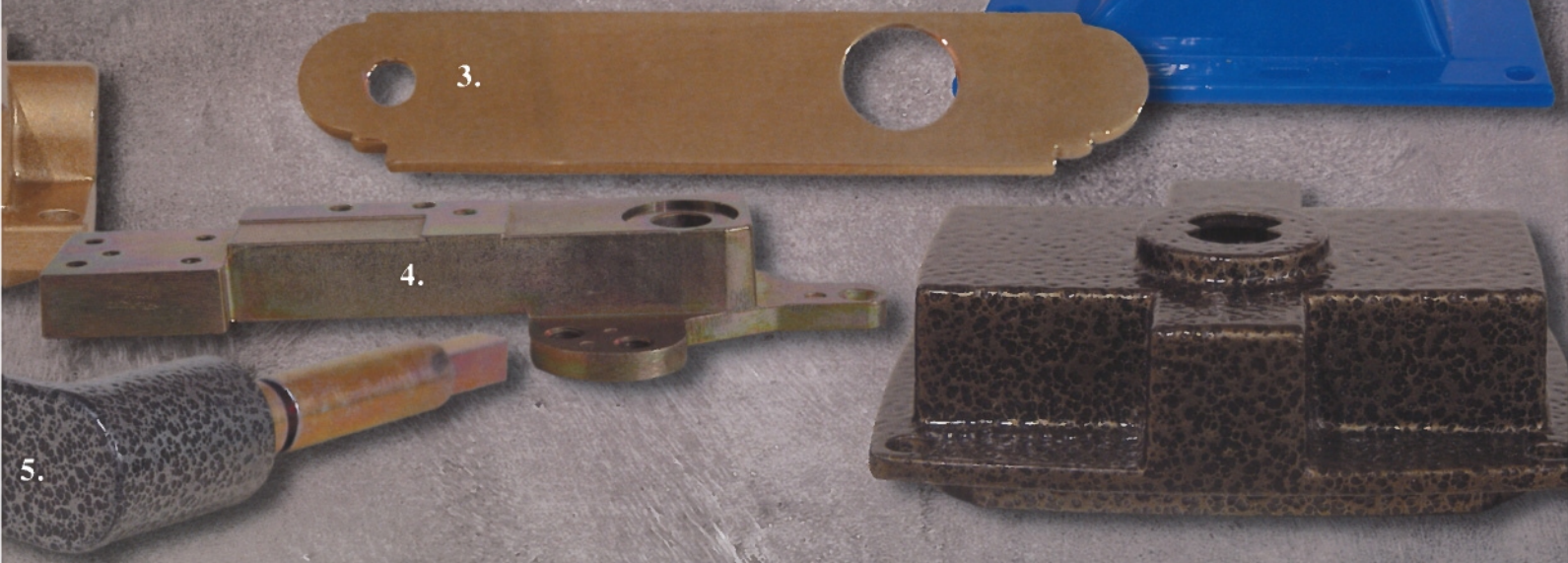
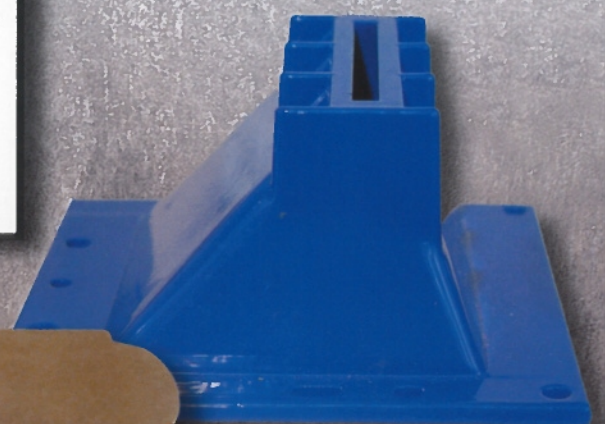
Normal lead times for production tooling are 4-6 weeks with additional time required for any castings that you would want machined. Albco's in-house mold shop is capable of producing prototypes and molds in less than a few days given the right situation.

Albco Criteria

- Minimum wall thickness .100"
- Surface finish 125 RMS or better
- Avoid thick sections over .375 in center of part
- Annual Qtys. typically 500 and up
- Min. draft 2 degrees
- Max. Casting dims 17" x 12" x 4" not to be combined

ZA-12 vs. Other Casting Materials and Processes

Material Properties	Albco ZA-12	For Comparison Only			
	Graphite Perm. Mold	Aluminum 356-T6 Sand	Aluminum 356-T6 Perm. Mold	Bronze 85-5-5-5 Sand	Cast Iron Class 30
Tensile Strength (1000 psi)	50	33	40	37	34
Yield Strength (1000 psi)	31	24	27	17	-
Elongation (%)	2-3	3.5	5	30	-
Hardness (Brinell)	110-115	70	80	65	180-225
Density (lb/in ³)	.22	.10	.10	.32	.26
Electrical Conductivity (% Cu)	25	39	41	15	-





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Lisbon, Ohio 44432

QUALITY, SERVICE & VALUE

Founded in 1956, Albco Foundry and Machine has the experience and expertise to provide you with its near net shape casting process. We have full CNC machining and offer painting and special coatings that make us a true single source provider.

It is our goal to reduce your current component manufacturing costs while at the same time enhance your product's performance, appearance, and quality.

With our nationwide network of engineers and metallurgists, Albco would be happy to provide an on-site seminar for your designers, engineers, or material specifiers.

