

CWM CONTRACT MANUFACTURING



**A faster, more
cost-effective
route from
product concept
to volume
production**



The outsourcing trend: Enabling OEMs to concentrate on what they do best

CWM Contract Manufacturing services can help speed time to volume, reduce total asset investment and cut production costs.



Outourcing of turnkey product manufacturing and assembly has become a major trend among leading OEM companies. The growing practice has allowed these companies to focus more intensively on their clear core competencies in research, development, engineering, marketing and sales.

Properly executed contract manufacturing can allow OEMs to direct their internal engineering and production resources to those specialized manufacturing skills that offer them the greatest competitive advantage and are not readily found outside the company.

A CONTINUING, OPTIMUM PRODUCTION SOLUTION

Third-party outsourcing by market-focused companies has always been an active manufacturing option. Today it has become a major business segment serving even the largest companies, especially those producing electronic and telecommunications products— where it is growing 25% annually.

Major drivers encouraging OEM management to consider turnkey outsourcing are market pressures to cut time-to-market, more efficient utilization of company assets, and greater production efficiencies.

CONTRACT MANUFACTURING CAN MEAN EARLIER MARKET RELEASE AND MORE PROFIT

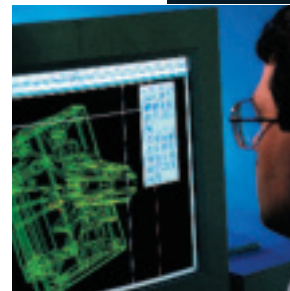
With shortened product life cycles, companies in highly competitive industries face a narrow window of opportunity for product introduction before competitive entry. Early release can mean significant profit rewards and a dominant market share.

Sizable OEM financial benefits can be achieved through outsourcing by eliminating investments in manufacturing equipment, inventory and a larger workforce. Some companies have even divested themselves of their own manufacturing plants.

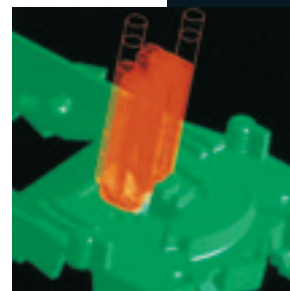
By utilizing the manufacturing expertise of a contract manufacturer whose business is focused on the efficient production of housings and components of all types, important process cost reductions can result.

For mechanical and electro-mechanical enclosures with a die casting at their core, CWM Contract Manufacturing delivers a complete range of integrated production and assembly services.

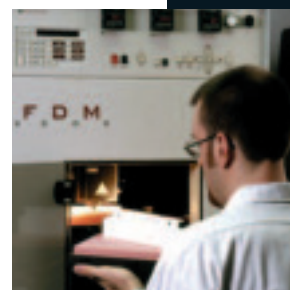
The steps below outline a comprehensive CWM Contract Manufacturing product program:



1 Preproduction total project involvement allows OEMs to capitalize on CWM's cost reduction expertise in design for manufacturing and assembly.



2 Working with appropriate OEM product CAD files, 3D modeling can be used by CWM engineers to confirm initial assembly interfaces.



3 After tooling design refinements, CWM will utilize Rapid Prototyping technology to assure form, fit and efficient assembly for all key components.

Where functional prototypes are indicated for performance testing and marketing exposure, CNC machined prototyping will be performed in-house.

4



New tooling for all custom components is CWM's responsibility, regardless of the manufacturing processes required for your housing.

5



Where custom machined parts are required, CWM-designed CNC work cells will assure volume production at the lowest unit cost.

6



First-piece accuracy of all complex parts is validated to your specifications prior to production with the most advanced measuring systems.

7



Chicago White Metal Casting has partnered with many of its customers in comprehensive product manufacturing and assembly solutions. Its reputation in the production of high-technology die cast housings and component parts is long established.

CWM was one of the earliest adopters of process advancements in all of the most widely used alloys. Its pioneering track record in producing outstanding magnesium housings is well known, with its work for the world's leading OEMs receiving international recognition.

From traditional post-casting machining and finishing of cast parts, CWM expanded to an in-house CNC machining capability.

FROM SIMPLE SUBASSEMBLIES TO COMPREHENSIVE PROGRAMS

From simple subassemblies, requests by its customers moved the company to more comprehensive programs, incorporating non-die cast custom parts produced by CWM partners, as well as all stock component procurement with single-source responsibility.

CWM contract manufacturing services focus on mechanical and electromechanical housings with a significant die cast component at their core.

CUSTOM PRODUCTION INTEGRATION, REGARDLESS OF PROCESS

A comprehensive CWM contract manufacturing program integrates custom production and the procurement of stock materials for all product components— regardless of the process utilized to produce them. This includes mechanical part prototyping of all custom parts, tooling design and construction, volume production, post-production machining, part surface finishing, and complete final housing assembly.

The manufacturing and purchasing experience of CWM can leverage the optimum combination of production and supply services to your advantage, seamlessly— with single-point responsibility.

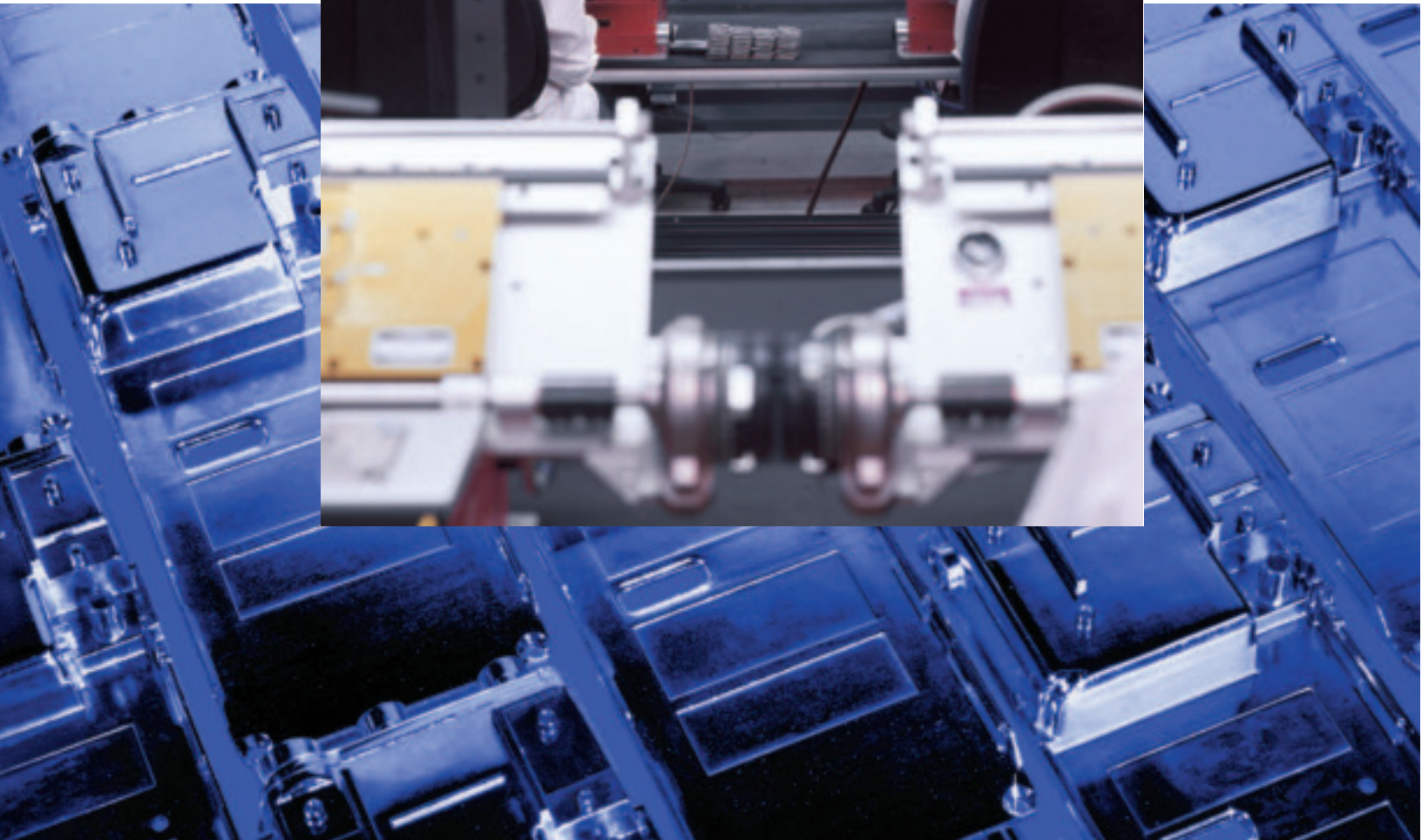
A proven track record in advanced component production and efficient product assembly



Total integration and leveraging of supply chain competencies to our customers' advantage is the goal of CWM CM.

Accelerating cost efficiencies in design for manufacturing and assembly

Eight-station assembly cell incorporates special equipment for automated two-sided gasketing in volume production.



Competent custom producers have always offered to provide their OEM customers with engineering assistance to take maximum advantage of a manufacturing process. In too many cases, such benefits have not been fully realized. The CWM contract manufacturing partnership powerfully mobilizes this potential.

CWM's engineering and management team assigned to your contract manufacturing project can address the integration and assembly of a complete housing, down to the last fastener. Combined with the close involvement of your engineering, manufacturing and purchasing group, our analysis can recommend design-for-manufacturing-and-assembly efficiencies that can significantly reduce your final unit costs. Such revised production and assembly scenarios can result from the elimination of secondary operations, part count reduction and the cutting of multiple assembly steps.

ASSEMBLIES WITH A DIE CASTING AT THE CORE

Our contract manufacturing services are available for a wide range of mechanical and electro-mechanical assemblies, with a die casting as a key element. Our extensive experience embraces custom-produced solutions in virtually every industry: business equipment and computers, medical devices, telecommunications housings, electrical and electronic enclosures, and industrial, commercial and defense applications.

Our services can range from single component assemblies with all related parts supplied to us, to full turnkey responsibility for production and procurement. With electronic housings, we will incorporate your fully validated board.

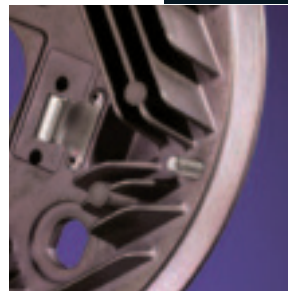
EVALUATE THE UNIQUE SERVICES OF CWM CM

We can become a flexible extension of your own manufacturing operation, with responsibility for all quality assurance including mechanical testing to your specifications. CWM's quality management systems are ISO 9001 and ISO 14001 registered.

Investigate how CWM-CM could speed time to market, reduce asset investment and cut new product costs for your next product program.



8 CM services can be highly selective or involve complete turnkey responsibility for housing-related production and assembly.



9 A die cast subassembly can incorporate all components, including custom parts produced as stampings, extrusions or plastic moldings.



10 All standard and custom components are supplier certified to meet the precise specifications of your project engineers.



11 Final housings or subassemblies can be packed to any shipping specification, including packaging in your own cartons.



Certified Aluminum, Magnesium & Zinc Die Casting
and Miniature Zinc & ZA-8 Die Cast Parts

EXCELLENCE IS EXPECTED

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Sales & Engineering Representation throughout North
America and in Central America. See Websites.

Browse CWM's DC2

(Die Cast Design Center)

Over 70 die casting design
guides and bulletins are available
to OEM product designers and
engineers for download 24/7 at
the Chicago White Metal Casting
website's Design Center:

<http://dc2.cwmdiecast.com>

**INVESTIGATE CWM CONTRACT MANUFACTURING:
CONTACT ONE OF OUR SALES/ENGINEER REPRESENTATIVES**

They can answer your initial questions and arrange for a visit to our facilities. For
locations in most major production centers throughout the U.S., and in Canada &
Mexico, see the CWM Contract Manufacturing Website at www.cwm-contractmfrg.com,
or call CWM Contract Manufacturing.

VISIT THE CWM WEBSITES

For a more detailed look at the capabilities and facilities of CWM-CM, visit
www.cwm-contractmfrg.com, the CWM Contract Manufacturing Website.

If you would like a comprehensive profile and virtual tour of Chicago White Metal
Casting, visit www.cwmdiecast.com. The quality management systems of CWM and its
divisions are ISO 9001 and ISO 14001 registered.



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