

Owens Design

The world's leading design+build partner
for advanced equipment manufacturers and OEMs



Owens Design
YOUR DESIGN+BUILD PARTNER



“Owens is the one contractor that really understands how to design and build complex equipment. They get it right every single time.”

The preferred partner for developing your advanced technology equipment

For over 25 years Owens Design has been the go-to product development partner for equipment manufacturers in the semiconductor, disk drive and solar industries—both for design and system building.

Why? Because of our years of uniquely specialized experience. And our ability to optimize product designs while cutting product costs. Plus, our track record for delivering products *faster*.

Customers like it that we make product development truly *turn-key* and *painless*. And that we take *responsibility*. Not just for part of the project, but for the *entire* project.

The best measure of customer satisfaction is that over 90% of our busi-

ness comes from repeat customers. Our success results from decades of focusing on *complex products*: Ones that require finely-tuned capabilities in multiple disciplines as well as in-depth industry experience. Products that demand high precision, high reliability and high performance.

The Owens Design Specialty: Multi-discipline Complex Projects
• System architecture / integration
• Complex mechanisms
• Motion control / precise positioning
• Material handling / fluids / gases
• AC / DC power control
• Software machine control and vision
• Safety and standards compliance
• Comprehensive program management

This is Owens' territory. And our customers have learned that no

matter how difficult the job, they can always depend on Owens to deliver a superior product—right on schedule.

Create stronger products

We believe superior products begin with superior engineers. Which is why Owens' engineers have an *average* of 20 years experience.

They work on leading-edge projects every day of the week. And because of our narrow industry focus, they solve many of the same types of problems repeatedly. Which makes them fast and efficient. But that's not all...

From day one, on each and every job, Owens' project management brings together the wisdom of four engineering teams—to review all the mechanical, electrical, software and manufacturing issues...

So, right from the start, each new product is designed not just for optimum performance and operability—but also for manufacturability. And serviceability. And reliability. And safety. And all the rest...

We think about *all* of the design issues because we handle the *manufacturing* as well.

Save a great deal of money

Owens' multi-discipline, total-system perspective not only results in better products, it also shows us more smart ways to cut costs while maximizing performance. And our customers routinely ask us to do just that...

For example, one customer wanted us to cut a tool's platform costs by 30% without compromising performance—and while still allowing them to improve their process technology.

With a strategic redesign we were able to achieve all of their goals—and also meet their very aggressive three-month time frame.

Substantial cost savings can come from eliminating redundant elements and reducing parts counts, streamlining your new design for greater

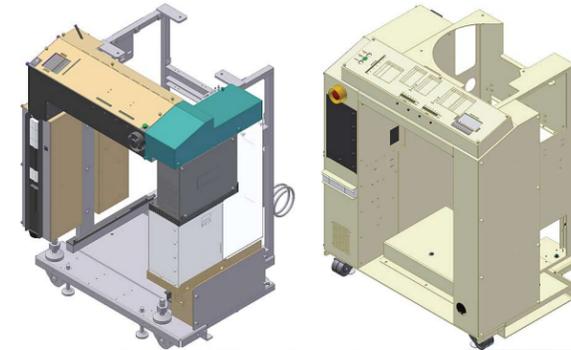


simplicity and maximum efficiency. And there's another major factor that not only reduces

costs, it also increases your revenues: That's *time savings*...

Save many months of time

Now you can get your new product out faster—usually many *months* faster. Because you'll have the benefit of all the volumes of specialized expertise Owens has accumulated over the past 25 years.



We were able to cut this tool's cost by 30% by redesigning the frame, electrical, wire harnessing, pneumatic and heating/cooling—all in a three-month time frame.

Plus, you'll have the finely-tuned and comprehensive Owens process driving your program forward. Tracking every detail. Ensuring that every schedule and milestone are met and no balls are dropped.

So your new system will come together much more smoothly and reliably—and quickly. So you can start selling or putting your new product to work much sooner.

Do a lot more—with less staff

When you use Owens, one of the greatest bottom line improvements will often be a dramatically increased ROI on your staff and resources...

In today's environment, many

product development groups face budget and head count reductions, while still being expected to do more. Our customers have found that Owens is a cost-effective way to avoid the hire-and-fire roller coaster.

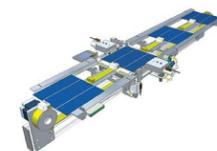


“We have chosen Owens Design as our partner to help reduce product development times. Owens Design provides a complete outsourcing solution.”

Rusmin Kudinar
President
Candela Instruments

And you can add, not just a few more engineers, but a complete team of seasoned, major league players.

Which means that now you can really focus your own “A-Team” on enhancing your company's unique processes. Which is what they do best. And leave the rest to Owens—which is what we do best.



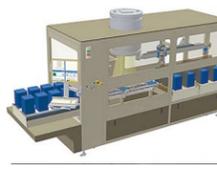
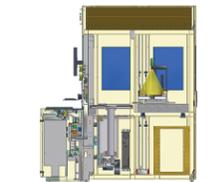
Get it right—on the first shot

In over 25 years, we've never ever failed to deliver a promised product.

Which means that you can stop worrying... About whether the product will meet its specs. Or make the delivery date. Or have problems in manufacturing... You can simply stop worrying. Period.

Because Owens has you covered in every department. We get it right, right from the start. And we keep it that way. Plus, we keep you fully engaged and totally informed at each and every step of the process.

No excuses. No finger-pointing. We take full responsibility and make sure everything happens just as it should.



Owens Design focuses on three major industries:

- Semiconductor
- Hard Disk Drive
- PV Solar



“Owens has incredible fail-safe systems. They cover all the bases and they always deliver.”

Making a science out of advanced equipment product development

Years ago, we set out to be the very best at what we do. And we structured our company and our process specifically to achieve that goal. And customers tell us it's working...

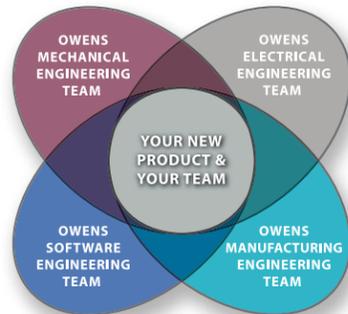
Owens' unique product development process might be described as *Total Product Focus*. It's about looking at each new product from all perspectives, and continuing to do that throughout development, start to finish.

It's about focusing all of our best brainpower on the product, from start to finish. It's about covering all the bases, addressing all the issues,

large and small, from start to finish. And to ensure that all of this really does happen on every new project, we established a proprietary, finely tuned development program.

Owens' absolute commitment

For us, the first step is assessing whether the job is a good fit for our capabilities and resources. This is critical, because too often we get jobs that other vendors couldn't complete. But in 25 years, Owens has never ever failed to deliver a promised product. So if we take on your project, you can absolutely, positively count on our delivering it.



A painless, turnkey process

We go out of our way to make your new product development a painless, professional and turnkey process. So



we give you a single point of contact for everything. This project manager is a seasoned, senior engineer with full knowledge and authority over all aspects of the project, whether they involve technical, schedule or commercial issues.

Also, right at the start, we get your project team together with ours to allow you to set the agenda. So you can tell us exactly what you want to achieve, in all target areas, from performance to cost. So all important issues are factored in from the start.



Then, as soon as we begin our work, you'll have not just one, but four integrated engineering teams evaluating every aspect of your new product: Looking at all the mechanical, electrical, software and manufacturing issues.

That's our *Total Product Focus*. And it's how we're able to "design in" trouble-free manufacturability, for example, right from the start. It's also how we deal with serviceability and safety and regulatory and all the other issues — right up front.

It eliminates surprises down the line and speeds the entire process.

Owens takes responsibility

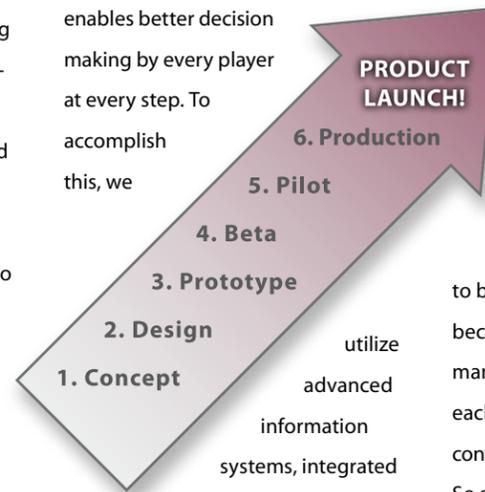
What many customers like best is that we take real *responsibility*. Not just for one piece of the program, but for the *whole program*...

Guaranteeing that your new equipment will meet its performance specs and all its other specs. That it will meet its milestones and its delivery date. And, that you'll be kept current on absolutely everything.

More informed decisions

Behind our product delivery program is the concept of *Total Information*. Which means that we're rigorous about keeping everyone on our team and your team up to the minute.

This not only helps move all parts of the program more rapidly, it also enables better decision making by every player at every step. To accomplish this, we



utilize advanced information systems, integrated with our own proprietary protocols and programs for tracking every aspect of every job.

Any change of any kind is entered via an expert change control process, ensuring that it is documented and implemented quickly and efficiently.

You're in charge

We never forget that it's *your* new product that we're developing. And it's *your* reputation that's on the line.

Which is why we work so hard to make every new product not just good, but best-of-class. And why we strive to make it precisely the product you want it to be, closely collaborating with you and your team.

The design + build advantage

Owens' unique ability to manufacture what we design is important because it gives customers significant benefits.

First, we can shorten delivery schedules. Traditionally, the transitions from prototype to beta to pilot have been difficult — because both the technology and job management had to be handed off each time. But with Owens, it's all one continuous flow. No hand-offs needed. So schedules can be compressed.

A second major benefit is that since we will be doing the manufacturing, we make extra efforts to get every last detail right *in design*. To save you time and cost in manufacturing.

Perhaps the most important benefit is that you'll never have to deal with disputes between vendors, because Owens takes responsibility for your entire program. And your Owens project manager has the authority to resolve any issue that might arise.

“Owens Design met our requirements on an extremely compressed schedule, contributing to our product launch being an overwhelming success.”

Engineering Director
Lam Research

“Working with Owens Design on the development and manufacture of our new microRSP-A300 metrology tool helped us bring this next-generation tool to market much more quickly and at a much lower development cost.”

Henrik Baekbo
CTO
Capres A/S

“I've been extremely pleased in dealing with Owens Design at all levels, from the executive level to their engineering capability. They are a critical partner for us.”

Allen Vance
Sr. VP of Engineering
Qcept Technologies

“Collaborating with Owens Design enabled us to accelerate our efforts and bring to market a tool which met our customers' needs in terms of both performance and cost of ownership.”

Mark Melliar-Smith
CEO
Molecular Imprints

“Owens is a dependable supplier and manufacturing partner for new technology development. ... They deliver on their specs.”

Neelsen Co
Senior Director, Engineering
Solaria





“Virtually all of the big names and lots of startups use Owens. Their track record is pretty unbeatable.”

Performance that's been tested and proven repeatedly

We're very proud of the fact that seven of the top ten Silicon Valley semiconductor equipment companies use us. And over 60% of the world's hard drive media is produced on equipment we made. And each week we continue to deepen and enrich our base of knowledge.

The value of Owens' unique "cross-pollinated" experience

Owens focuses on three leading edge industries: semiconductor equipment, photovoltaic solar and disk drive.

This is key, because the complementary demands of those industries often expand our perspective and broaden our repertoire of options. They enable us to "cross-pollinate" in-

sights from one discipline to another. Such as bringing our knowledge of high-unit-cost wafer processing to bear on high-volume, low-unit-cost disk drive manufacturing. Or our experience with fragile semiconductor substrates to handling PV cells...

Experienced in semiconductor

In developing advanced semiconductor equipment for over two decades,



we have learned a few things about how to do it right. We understand well all the rigorous environments and codes and standards. We keep pace—and often help set the pace—in best practices as the industry reduces geometries and also increases throughput and automation.

So Owens has deep experience in a broad range of semiconductor systems. From wafer handling, alignment and staging to vision systems, optical integration and vibration isolation. From wet and dry cleaning to vacuum chambers, pumps and controls. From integrating EFEMs to maintaining Class 1 environments.

Along the way, we've also created innovative systems of our own. Everything from wafer-handling solutions to full metrology platforms.

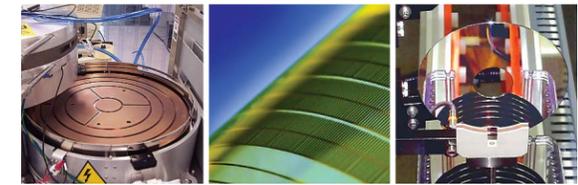
Experienced in solar

Manufacturing for the photovoltaic solar industry demands innovation in process automation, material handling and high-yield solutions. It requires ramping to high volumes quickly while driving down the cost per watt. And the rapid evolution of wafer-based and thin-film photovoltaic technologies requires equally fast equipment development.

Owens is creating many solutions for a range of solar technologies...

plexity, cost and performance.

In thin-film processes—we recognize the challenges of amorphous silicon and multi-layer films. Unique form factors and substrates can require customized equipment for processing, as well as for encapsulation, packaging and test. Fortunately, Owens brings a unique repertoire of experience to address these needs cost-effectively.



Experienced in disk drive

With increasing throughputs and the proliferation of form factors and new materials, the factory automation and handling of disk drive media have become increasingly complex.

We've developed many unique disk handling solutions, from high-throughput linear tracks to ultra-precise vacuum chuck loading to cassetteless media transfer for wet process cleaning.

For the leading media factories, we have created innovative solutions for all form factors, ID, OD, and vacuum end effectors, aluminum and glass substrates and wet/dry/high-temp environments—all with high-reliability.

Also, to address the increasingly important issue of disk contamination, we've developed modules for scrubbing, drying and immersion as well as full, automated cleaning lines.



For wafer-based silicon PV—we know how to handle thin, fragile wafers in high-speed processing. And also how to automate manufacturing to achieve high quality and rapid high-volume scalability, while controlling unit costs.

In concentrating PV—we understand that the optical component integration requires precise alignment and customized equipment. We also know how to optimize the intricate relationships between system com-

Ironclad protection of your intellectual property

To maintain strong relationships with so many different manufacturers for more than 25 years, Owens has made a science out of keeping each customer's intellectual property absolutely confidential.

That includes putting into place whatever systems or procedures the customer may request or that we may deem necessary to maintain complete confidentiality of product or company private information. Our record of repeat business is itself a testament to the trust our customers have in our systems.

And one further note: When you contract with us to do a design, our completed work becomes *your* property. Including the designs, drawings and the rest.

With many outside contractors that's not the case, but it definitely *is* the case with Owens Design.



Owens Design is proud to have worked both with industry giants and startups. Here is a partial customer list...

- KLA-Tencor
- Seagate
- Applied Materials
- MetroSol
- Hewlett-Packard
- Asyst
- OptiSolar
- Lam Research
- FEI
- Molecular Imprints
- GTSolar
- Qcept Technologies
- Hitachi
- Suss MicroTec
- Therma-Wave
- Tegal
- Agilent Technologies
- Mattson
- Candela Instruments
- Novellus
- Credence
- Western Digital
- SEZ
- Ultratech
- Teradyne
- FormFactor
- BOC Edwards
- Advantest
- and many more

Streamlined manufacturing — whether for prototype, medium or high volume

Owens is designed for manufacturing advanced equipment. We've already shipped over 1,000 systems from our Fremont facility and hundreds more through our offshore CM partners.



Customers value our ability to smoothly transfer technology from the design to manufacturing phases without missing a beat. This comes from decades of high-level experience in handling both design and manufacturing. It also comes from our unique *Total Product Focus* program that designs manufacturability in from day one.

In Fremont, we're structured and staffed for everything from prototype to medium-volume production. We have optimized systems in place to accommodate high change rates and ongoing technical involvement—and to constantly keep all manufacturing documentation up to date.

In addition, we can ramp to high-volume production using a seamless, turnkey program perfected over many years. We transition smoothly to a proven high-volume contract manufacturer in a low-cost region, either one of our partners or one of yours. Our phased transfer of manufacturing reduces risk and ensures quality. And we maintain control of everything, start to finish.

Owens Design: "Success Insurance"

The reason why so many companies use Owens Design may come down to something like insurance.

They want a "sure thing." Especially when the stakes are high and failure is not an option. Which may be why we have everyone from big names to startups on our customer list.



So, whatever your size, if you need to develop and build a new piece of advanced technology equipment and you'd like some extra "success insurance," we should talk. Because failure is not in our vocabulary and success is what we're all about.

