-- Speaker 0 00:00:04 Make It Right. The manufacturing podcast
Speaker 1 00:00:09 Sourcing the necessary materials and parts can sometimes be a challenge for manufacturers. But when it comes to finding the company to produce large scale unique or custom products or parts, it can seem a near impossible and costly search aerospace mining, mills, construction. They often face this challenge and today's guest on make it right, serves those industries and more meth source bridges, a unique manufacturing gap. Their technical understanding enables the sourcing of large challenging parts in terms of technical specifications, size, alloy, and difficulty to manufacture. And they provide deep engineering insight to achieve optimal design that improves part manufacturability for their clients. And their goal is to get it done in a cost effective and timely manner. John Meyer is with MetSource and he has helped supply necessary parts and products for such products as the Bay area, rapid transit project in San Francisco and the Seattle center arena. So welcome to the Make It Right podcast, John, I'm really anxious to hear about how you run your business and the kind of things that you get to help make.
Speaker 2 00:01:19 Thank you for having us, Janet.
Speaker 1 00:01:21 My pleasure is, so it seems to me that what you do in the manufacturing space is pretty unique. So let's talk about just how you got into this business and what your manufacturing background is.
Speaker 2 00:01:32 Well, it is unique. Uh, I've been very blessed as I look at, you know, my background in manufacturing and, uh, my education that, uh, it's definitely provided the building blocks for me to offer value to my clients within the metals industry. So education wise, I have degrees in metallurgical engineering from the Missouri university of science and technology and a master's degree in business MBA for Webster university. While I was getting my undergrad in engineering, I would, I had the opportunity to do several interns. And one of the more exciting ones to me was a, uh, intern for a commercial. He treater during the st Louis area. And that job really gave me the first glimpse into offering consultation to him, uh, to our customers. And as a metallurgist, our group was tasked with performing failure analysis and evaluation of customer supplied parts. And what we would do is evaluate determining the failure mode on those parts and then offer suggestions to our customers for material processing or he treatment changes that they could do to improve the performance of their parts.
Speaker 2 00:02:43 So that gave me my kind of first glimpse into concept D offering consultation to my customers. After graduating with my engineering degree, I went to work directly for a same test Foundry here in st. Louis that manufacturers, large parts, sand cast parts, and high alloys performing various Mo uh, roles in manufacturing engineering. Uh, I got a really good kind of overview of the casting process. Uh, the benefits of castings, the drawbacks, or a casting may be used more effectively than other methods of manufacturing. Uh, eventually I found myself in a sales role where I really started learning and practicing consultative selling. So what I mean by that is, uh, consultative, utilizing my understanding of casting method, uh, learning my customer's part and application, and then ultimately offering suggestions to improve their product and performance similar to that role that I had at the commercial, huge trader, all those experiences kind of built me up to going on my own and starting this business back in 2004, uh, selling castings, uh, initially, but eventually extending my capabilities into a fabricated product for jeans and now a plastics.
Speaker 1 00:03:54 Wow. Okay. So I think probably, uh, and I've seen some of these pictures, but I think to give people a real idea of what you can do for a customer, let's talk about the tubing that you helped supply for the trans Bay transit center in San Francisco. Like this is a showcase transit area. It's this huge glass in grand hall where the Traveler's pass through that is held up by these massive tubing posts. Um, so what was the challenge that the contractor had on this project that you helped solve?
Speaker 2 00:04:29 Well, the transplant project is a perfect example of how my company med source provides engineered solutions. So, uh, these, uh, these tubes ar --

-- e structural tubes that hold up the entire weight of the structure of the trans Bay center. And, uh, my initial discussions with the engineers there, uh, were at a construction company's offices here in st. Louis. And, uh, they connect to my ability for, uh, centrifical tubing with their requirement for this. At that time, all I knew was a huge project to be undertaken in San Francisco. Initially, I was given the scope of the requirements in terms of material, specification requirements, um, the size and number of the tubes. And then at that time, the initial challenge was, uh, unacceptable delivery schedule from their current supplier. So initially that's the information that we were given, um, with all projects that we kind of undertake.
Speaker 2 00:05:25 Um, you know, you got to drill down a little bit, um, and discover you discover additional challenges. So one thing to know is the trans based center in San Francisco in San Francisco is huge. Uh, these tubes are, are really important, uh, really sizable. Um, uh, we were given strict mechanical properties to me, which were challenging. So I worked with my manufacturer to, to actually develop an, uh, with he treatments to re uh, to meet the requirements of the projects, uh, mechanical strength on these tubes that would withstand that weight of the structure. Um, the tubes size-wise were 32 inches in diameter and several inches in wall thickness, but the, the big thing was the length of these tubes. So the, the shortest tube, depending on the placement and the structure, uh, these tubes were varying in lengths from 15 feet up to 47 feet in length.
Speaker 2 00:06:29 Um, there's no one in the world that can make that, that diameter and that length. So, um, my capability through my central goal Foundry, which is unique is that they can make a, a length up to 36 feet life. Um, the forger that they originally went to could only make it in 13 foot lengths. So I was able to eliminate some expense and weld scenes. And as we were drilling in to the engineers on the projects and the designers and the architects, what we found was the tubes that were exposed to the public, um, that are visible. There's an aesthetic appearance that, uh, they wanted to limit the number of weld seams. So not only did we have to meet the mechanical properties in the size requirements, but, uh, limiting the number of welds is ultimately what won me that project.
Speaker 1 00:07:24 Hmm. Wow. And you know, I'm going to throw you a curve ball here, John. So tell me if you have an answer for it or not, but I'm thinking we're talking San Francisco. Is there some concern about earthquake and stability and structure, or is that an engineering thing that you didn't have to really worry about?
Speaker 2 00:07:43 Thankfully, I didn't have to worry about that, but there are engineered designs that, uh, account for earthquake, uh, you know, up to a certain limit, um, those are handled in the base of the structure. All my tubing was more into the floors of the structure and then supporting the, uh, the overall roof structure. Um, so fortunately I didn't have to deal with the base structure in the earthquake concerns, but, uh, yeah, anything in, uh, those earthquake, uh, specific zones, they have, uh, uh, you know, specific engineering that goes into the base structure, that accounts for that.
Speaker 1 00:08:24 So your business, you have manufacturing partners that you pair with a project create what's needed. So these manufacturers, they do the casting, the forging fabrication, the machining and the metal is, or the plastics. Um, there's sometimes sourcing very specific materials for unique projects, correct?
Speaker 2 00:08:43 Oh, most definitely. Yes. So materials are obviously pretty interested me with my engineering background, but also I think people fail to realize over the last years, the development and alloys and materials that we've, uh, we've encountered have, you know, specifically for our specific applications. Now, this is driven by aerospace and automotive. They're looking for stronger materials and lighter weights, obviously for fuel consumption reasons. But, uh, when I tell people, if we take stainless steel for granted, you know, as a society, but when I tell people that it was only developed a hundred years ago, uh, the addition of chromium to steel to produce stainless steel that was invented in 1913, that wasn't very long ago. In fact, 80% --

-- of the world's alloys have been developed in the last 20 years. That's pretty amazing to think of. So that's what really drives, uh, you know, my interest in materials, but, uh, also, um, it's important to note that, uh, even though automotive and aerospace is kind of driving this, there's also developments and materials for all the other industries as well. And that's where my company comes in.
Speaker 1 00:09:56 So are you actually creating some of these new allies? I mean, I know you said you had to do something specific for the San Francisco transit system, um, or transit way, uh, sorry. Are your manufacturers actually, you're working with them to come up with these new,
Speaker 2 00:10:12 We do and very specific circumstances. So, uh, one example, we provide some vowels for oil and gas and these, uh, alloys are going either, you know, depending on the application, there may be a sour gas, well, very deep into the, uh, ends up ground. Uh, we're developing, uh, alloys similar to in canal, uh, that would withstand that corrosion. Uh, we're providing materials to North SOC certification for the North sea. Uh, so that's, uh, that's valve components that are going into seawater corrosion application. And yeah, we're, we're either tweaking existing alloys for that Bennet customer's benefit or we're recruiting our own alloys to, uh, to service our clients needs.
Speaker 1 00:10:59 Wow. And can you also offer support to your customers with alternative design solutions or modifications in the actual product that they want to make so you can help them reduce costs and maybe get things out there for them faster?
Speaker 2 00:11:15 That's what we do most definitely. Yes. So that's what we do on a daily basis. So, you know, these design modifications there, they're not overhaul, so there's design. So our customers actually own they're the OEMs, they own the design, they have owned all the rights. What I'm really talking about is I understand the process to manufacturer to their design. So I'm offering maybe a design tweak, a radius here, a rib there that would help in the manufacturer, their parts, or help within the service of the parts. So it's really my knowledge of how to manufacture and then looking at their design to help them create a better product for, for their service. And one example that I can give you is, um, we, and this goes back several years, we provided a tube for a heat reader who, um, does a continuous heat treating process on some, uh, uh, tungsten filament process.
Speaker 2 00:12:15 And he was getting a pretty short lab. Now, this tube's huge, we're talking to 18 feet long and three feet in diameter, and it's used to, uh, you know, size the size of this tungsten up to a baseball size and diameter down to just power. And it all goes through this tube and it is heat treated well. We put lifters in this tube to kind of make sure that that product, that Thompson was getting accurate. He treatment during the process, as it flows through the two, but their failure Mo Mo mechanism was actually the, uh, the sizable product product was impacting the tube and causing crafts. So we just included ribs, both, uh, uh, around the diameter and then lengthwise, they actually strengthened the tube wall to, uh, uh, to give them longer life. And they went from initially a 12 month life to a 36 month life. So those are, that's just one example of us improving their performance of their part, uh, or their product, uh, by just adding an engineered solution.
Speaker 1 00:13:25 Wow. I'm thinking about, um, some of the other key challenges that you've been able to address, and you've talked about the aerospace industry and, you know, the need for things that are a little bit lighter because of, you know, fuel consumption and things like that. I don't know whether this relates to it or not, but you did do an interesting project in the aerospace sector. Can you explain how that went?
Speaker 2 00:13:46 So, uh, very recently I was approached by a design engineer and a tier one supplier to, to aerospace. And, uh, he wanted to create some vain axial fan components, and he was looking for prototypes at this point and he approached me and we're talking veins on a Impaler where the placement and pitch are. Those veins are very important to airflow. Um, his initial thought was he wanted to investment cast these, but, uh, after looking at the number that he wanted, a parts just init --

-- ially as prototypes, um, it was, uh, actually a better recommendation to use a five axis CNC machine to produce those, um, out of Rambo aluminum bar and, uh, use those as his prototypes to, uh, go through the design, uh, engineering. Uh, so he could do his air flow, uh, measurements and whatnot. And then as that becomes a production project, then we will switch it to an investment casting where we can make thousands of those for his eventual use in, um, a recirculation error on, on airplanes. But, uh, uh, right now that project is waiting approval based on his kind of design studies, but that's one example within aerospace, you know, aerospace is important to us because they're really the ones seeking out engineering solutions, uh, using materials that kinda match up with my company. Uh, there was, uh, a large, uh, density of aerospace customers in my area. So the aerospace industry is important to both me and my manufacturers for, uh, development and, uh, uh, I've, uh, been fortunate to, uh, to work on several projects for the aerospace industry.

Speaker 1 00:15:39 Yeah. And I guess there's, there's specifications. Like we talked about lightness and you just like, they can't have a failure rate when we're talking about something in the air. You don't want any failures. So I guess the challenges are quite significant.

Speaker 2 00:15:54 There's no doubt. So we call it mission critical, but some people call it live for safety, critical where, you know, these parts can not fail. Um, we're making landing gear bushings, uh, obviously that's controlling the, uh, uh, the wheels that touchdown, so you can land the plane, um, those components, uh, you know, just for safety reasons can, you know, obviously can't fail. So yeah, there's, there's definitely a, uh, quality, uh, uh, component to aerospace.

Speaker 1 00:16:25 Can you talk about, you know, you're creating these really unique parts things that, you know, he may not have ever even thought of having to, to figure out how to get these things made before, and you're, you're creating them in a timely and a cost effective manner. Like I'm, I'm curious about, you know, how much time can you use save somebody who's looking for a product and, you know, how much of a cost impact can you have on some projects? Can you share a story about how you've been able to do that?

Speaker 2 00:16:57 Well, each, each, you know, each specific applications, different, uh, you know, for the petrochemical industry, um, a day's worth of shutdown. If they have an unplanned shut down due to a heart failure that could cost them a million dollars a day. Um, other, other manufacturers, it's not quite that impact, but, uh, uh, they still, you know, schedule integrity is important to them, uh, just for customer satisfaction. So it may not be a million dollars a day, but may, maybe thousands of dollars an hour that they're losing them and, um, opportunity costs. But, uh, you know, we deal with these being in manufacturing industry. We deal with these unplanned shutdowns or failures all the time. And, uh, I'm blessed that my manufacturers recognize, um, that, uh, my customers need product, you know, in an expedited fashion. Um, one example recently was, um, a, a mill here in the st.

Speaker 2 00:17:58 Louis area had a shortage of parts because their supplier was shut down due to the COVID, uh, a mandate from their governor and their state. And, uh, they asked us to cast some large copper castings, 500 pounds each, uh, in an expedited fashion. Well, I didn't even have a pattern to create those guests. You know, we had to modify a pattern. Uh, we had to get it, uh, we had to get the material and then, uh, you delivered to us, we had to cast it, finish it, machine it, ship it to them. And we did that in three weeks. Normally something along those lines would be measured in months. Um, so, you know, my manufacturer really stepped up to the plate, uh, was able to perform a magic on that project. And we essentially saved our, our, our clients, uh, tons of money. Wow.

Speaker 1 00:18:53 You know, when I think of unique manufacturers and unique projects that they're working on, you know, the first person who always comes to mind is somebody like Elon Musk. Um, you know, I bet you'd love to have a call from him sometime. Right. You know, come on, create me something, right.

Speaker 2 00:19:10 Well, no doubt. So Ilan, you know, with space X, Tesla, and borin --

-- g company, they're all examples of him pushing technology to its limits. Um, it's, uh, kind of incredible to, to think of, or, you know, a self driving car 10 years ago, you have, you know, that would have been fantasy, but with Tesla, now we have it, right. So we could all learn something from his work ethic, uh, his results in business. Um, very recently I did a posting on LinkedIn where, uh, Tesla had done something, uh, where they had, uh, garnered some national attention. So the project is where Tesla had a series of robots, uh, installing, uh, gluing, assembling 70 components into a rear on your body assembly for one of their cars. And they made a decision to actually replace, uh, take out all those robots. It wasn't necessary and replace all those components with one singular aluminum casting.
Speaker 2 00:20:15 And it got me thinking, I posted this on LinkedIn. That's exactly the engineering solution that my company provides. Um, it's, it's, you know, it's an example of thinking outside the box, how do you improve your manufacturing process by, you know, either replacing an assembly with one part or thinking of a better material, or have a better way to manufacture your, your end product and, you know, a company that's. So well-managed like Tesla and so highly engineered if they have examples. And in fact, Janet, they're looking at other parts of this same component or a car and other models to, uh, to, uh, do the same sort of solution to this. This project was so successful. I read in this LinkedIn article, but if, if Tesla can find opportunities like that, any manufacturer, you know, can find those sort of opportunities. And that's the space that my company meets, where steals with him, uh, trying to find a better way to produce a product
Speaker 1 00:21:19 Well. And if you think about that and you know, who knows what the numbers are for Elon Musk and, and Tesla, but if you only have that, you have that one part, as opposed to all of those other components, like how much of a time saving factor is that for them now, I guess
Speaker 2 00:21:38 It's unfathomable, it's unfathomable. They must be saving millions of dollars without having to operate those robots with, you know, just, just the cost of 70 components to one. It they're saving lots of money.
Speaker 1 00:21:53 John, you know, this industry, you're, you're talking to manufacturers all the time, you're creating these unique components. Do you have any key takeaways that you want to leave with the listeners about how they can think about their manufacturing projects and processes and what they're doing to improve them?
Speaker 2 00:22:13 I think it's, it's important to, uh, talk to engineers outside your company because you get kind of into, this is the way we've always done it. And a set of fresh eyes on a part or process could offer, um, a new perspective. And, uh, that's really, you know, what I'm doing is not, uh, you know, it really, it's only, uh, taking what I've learned from other applications and just applying it to new applications. It's not earth shattering. Um, you know, if we have an issue with one out, it's basically performing failure analysis and finding the reason why something fails and, and improving it. So it doesn't feel in that mechanism anymore. That's basically what it boils down
Speaker 1 00:23:10 And all of this research and development. And I'm going to lead this into a podcast. I'm going to do it a couple of weeks though. But all that research and development that a manufacturing company does can lead into tax credits for them, right? So there, it's not a, it's not a sunk cost that you never get the return. I would have.
Speaker 2 00:23:26 You're a cycler ride. So the benefits of this one change of this little R and D investment could be forever. It could be years and years, and you could get tax breaks. You could obviously get the benefit of eliminating 17 components and want, uh, it's unlimited, uh, the amount of benefit you can get
Speaker 1 00:23:46 From thinking in this way. Yeah, John, really a pleasure to talk to you about MetSource and what you do. And I wish you continued success. It sounds like a really cool business. Thank you so much. Appreciate your time. Oh, my pleasure. John Meyer is the owner of MetSource. They're a manufacturers representation agency and they work on some really cool and huge projects. That's our show this week, please check --

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