

CASE STUDY

HOW FOCUSED ON MACHINING ACHIEVED PROPER WEIGHT REDUCTION AND AIRFLOW FOR AN ALUMINUM 6061 STRUCTURAL BRACKET WHILE REDUCING COST AND LEAD TIME.



THE COMPANY

GLOBAL COMMS EXCHANGE (GCE) PROVIDES CUSTOM SUPPORT SOLUTIONS FOR THE SATELLITE INDUSTRY. THEY LEVERAGE OVER 50 YEARS OF FIXED-SATELLITE SERVICE (FSS) AND MOBILE-SATELLITE SERVICE (MSS) EXPERIENCE TO OPTIMIZE, PROCURE, AND CONFIGURE VSAT AND MOBILE HARDWARE.

INDUSTRY: AEROSPACE/DEFENSE

LOCATION: COLORADO SPRINGS, COLORADO

COMPANY SIZE: 18 PEOPLE

THE PROJECT

THE CHALLENGE: GCE NEEDED A STRUCTURAL BRACKET THAT WAS BOTH STRONG AND LIGHTWEIGHT. BUT THE SMALL POCKETS THEY DESIGNED INTO THE PART MEANT LONG RUN TIMES AND A HIGH COST PER PART.

THE SOLUTION: FOCUSED ON MACHINING PROPOSED DRILLING HOLES INSTEAD OF MACHINING SMALL POCKETS TO SAVE HOURS PER PART WHILE ACHIEVING COMPARABLE STRENGTH AND WEIGHT REDUCTION PROPERTIES.

THE OUTCOME: FOCUSED ON MACHINING REDUCED MACHINING TIME FROM 45 MINUTES TO <60 SECONDS PER POCKET AND REDUCED PART COST BY NEARLY 30% FOR GCE.

120+ UNIQUE MACHINED PARTS AND COUNTING

WHEN STEVE MORLING JOINED GCE AS AN OPERATIONS CONSULTANT IN 2019, HE WAS TASKED WITH FINDING A MACHINE SHOP TO MAKE PARTS FOR AIRBORNE SATCOM ANTENNAS.

HE CAME ACROSS FOCUSED ON MACHINING WHILE SEARCHING FOR SHOPS CLOSE TO GCE'S MANUFACTURING FACILITY IN COLORADO SPRINGS, COLORADO.

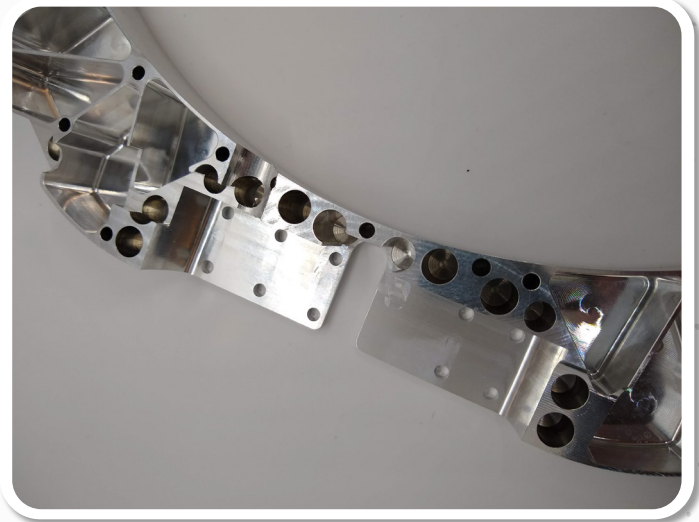
"I WAS DRAWN TO FOCUSED ON MACHINING'S ISO CERTIFIED STATUS, WHICH INDICATED THAT THE SHOP HAS DEVELOPED, IMPLEMENTED, AND MAINTAINS A RIGOROUS QUALITY MANAGEMENT SYSTEM," SAID STEVE.

STEVE VISITED FOCUSED ON MACHINING AT THEIR SHOP IN LOUVIERS AND IMMEDIATELY FORMED A CONNECTION WITH THE SHOP'S PRESIDENT, JUSTIN QUINN.

"I TOURED THE SHOP AND I LIKED WHAT I SAW," SAID STEVE. "I APPRECIATED JUSTIN'S BUSINESS METHODOLOGY, AND KNEW FOCUSED ON MACHINING WOULD BE A GREAT PARTNER FOR GCE."

HE SENT JUSTIN A SET OF DRAWINGS FOR COMPLEX PARTS. WHEN JUSTIN CAME BACK WITH COMPETITIVE PRICING, STEVE REQUESTED TEST RUNS OF SEVERAL PARTS. GCE'S QUALITY ASSURANCE TEAM ASSESSED THE COMPLETED PARTS AND GAVE THE THUMBS UP TO MOVE FORWARD WITH FOCUSED ON MACHINING.

STEVE HAS RELIED ON FOCUSED ON MACHINING FOR COMPLEX MACHINED PARTS EVER SINCE. TO DATE, FOCUSED ON MACHINING HAS RUN 120+ UNIQUE MACHINED PARTS FOR GCE.



A BETTER WAY TO ACHIEVE WEIGHT REDUCTION AND AIRFLOW FOR A 6061 ALUMINUM STRUCTURAL BRACKET

RECENTLY, GCE NEEDED A STRUCTURAL BRACKET MADE FROM 6061 ALUMINUM TO HOLD AN ALUMINUM REFLECTOR IN PLACE FOR AN ANTENNA.

THE PART NEEDED TO BE STRONG ENOUGH TO ABSORB THE PLANE'S VIBRATION, WHILE HOLDING AN ALUMINUM REFLECTOR AND THE FEED ATTACHED TO THE REFLECTOR. SINCE THE PART WOULD BE IN A HIGH TEMPERATURE ENVIRONMENT, IT NEEDED PROPER AIRFLOW TO PREVENT HEAT FROM BUILDING UP. IT ALSO NEEDED TO BE LIGHTWEIGHT TO KEEP FUEL COSTS DOWN.

GCE DESIGNED THE PART WITH SMALL TRIANGULAR POCKETS TO ACHIEVE WEIGHT REDUCTION AND AIRFLOW WHILE MAINTAINING STRUCTURAL INTEGRITY. BUT SMALL POCKETS ARE KNOWN FOR BEING TIME-CONSUMING AND LABOR-INTENSIVE TO MACHINE.

THE TEAM AT FOCUSED ON MACHINING REVIEWED THE ORIGINAL DESIGN AND DETERMINED THAT THEY WOULD NEED TO USE A 1/32" END MILL TO MACHINE THE 1" DEEP POCKETS. THAT WOULD PUT THEIR TOOLING AT 20 TIMES LONGER THAN THE DIAMETER. ANYTHING MORE THAN 5 TIMES THE DIAMETER IS CONSIDERED DIFFICULT TO MACHINE.

EACH POCKET ALONE WOULD TAKE 45 MINUTES TO 1 HOUR TO MACHINE.

JUSTIN EXPLAINED THE PROBLEM TO STEVE AND SUGGESTED THAT FOCUSED ON MACHINING COULD COME UP WITH A BETTER SOLUTION FOR ACHIEVING WEIGHT REDUCTION AND AIRFLOW. HE AND HIS TEAM PUT THE MODEL RIGHT INTO MASTERCAM AND FOUND A WAY TO REPLACE THE POCKETS WITH DRILLED HOLES.

JUSTIN PRESENTED STEVE WITH THIS ALTERNATIVE SOLUTION, WHICH MET ALL PART REQUIREMENTS AT A SIGNIFICANTLY LOWER COST.

"FOCUSED ON MACHINING REDUCED MACHINING TIME FROM 45 MINUTES TO LESS THAN 60 SECONDS PER POCKET, SAVING US NEARLY 30% PER PART," SAID STEVE.



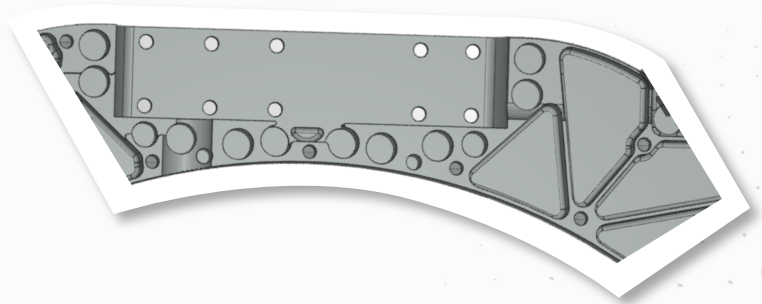
A TRUE PARTNERSHIP WITH A SOLUTIONS-ORIENTED MACHINE SHOP

STEVE KNOWS HE CAN ALWAYS RELY ON JUSTIN TO FIND THE FASTEST AND MOST COST-EFFECTIVE WAY TO MACHINE GCE'S PARTS.

"IN MY EXPERIENCE, WHEN YOU SEND A DRAWING TO A MACHINE SHOP, A GOOD ONE WILL USE THEIR EXPERTISE TO PROVIDE STRATEGIC RECOMMENDATIONS INSTEAD OF JUST QUOTING THE PART AS DESIGNED," SAID STEVE.

JUSTIN AND HIS TEAM WELCOME THE OPPORTUNITY TO COLLABORATE WITH CUSTOMERS AND FIND SOLUTIONS THAT IMPROVE QUALITY, COST, AND LEAD TIMES.

"WE LIKE TO OPTIMIZE EFFICIENCY WHENEVER POSSIBLE TO INCREASE OUR OWN THROUGHPUT," SAID JUSTIN. "MAKING PARTS EASIER TO MACHINE IS A WIN-WIN SITUATION FOR US AND OUR CUSTOMERS."



KEY DIFFERENTIATORS —

FOR MORE THAN A DECADE, FOCUSED ON MACHINING HAS PROVIDED HIGH-QUALITY, CUSTOM MACHINED PARTS AND COMPONENTS FOR CUSTOMERS ACROSS A WIDE RANGE OF INDUSTRIES INCLUDING AEROSPACE, ENERGY, MANUFACTURING, FOOD AND BEVERAGE, AND MILITARY.

■ SHORT LEAD TIMES

FOCUSED ON MACHINING SPECIALIZES IN DELIVERING CNC MACHINED PARTS IN 2-4 WEEKS. THAT MEANS HIGH-QUALITY PARTS WHEN YOU NEED THEM.

■ COMMUNICATION + TRANSPARENCY

FOCUSED ON MACHINING COMMUNICATES WITH CUSTOMERS EVERY STEP OF THE WAY. THEY NEVER MAKE ASSUMPTIONS OR KEEP CUSTOMERS IN THE DARK.

■ PRECISION MACHINING CAPABILITIES

MACHINING REQUIRES A TREMENDOUS DEGREE OF SKILL AND AN EMPHASIS ON PRECISION. FOCUSED ON MACHINING EXCELS AT ACHIEVING THE TIGHTEST TOLERANCES AND THE MOST COMPLEX GEOMETRIES.