Brunk Industries, Inc.
Current Sustainability Initiatives

Category	Current Initiatives
Manufacturing Process	
Material waste reduction.	Brunk has an ongoing initiative to review component designs in order to increase tolerance on non-critical dimensions. This review includes notes referencing the cosmetics, cleanliness etc.
Process water regulators.	Brunk has various manufacturing processes that use water as a source to reduce process temperature in our Laser Power units, EDM machines, Air compressors, and our future Crest F-300 cleaning process. These processes are connected to chillers located in proximity to the machines. The chillers reuse the water by removing the heat through refrigeration. Water in the chiller remains in a closed loop and is reused continuously. The overflow for our aqueous wash line wash tanks and rinse tanks cascade into the previous tank in sequence. Brunk is able to reuse the water one additional time before the waste water is processed through the pack press and then enters the waste stream. We control the use of DI water in three of our aqueous systems through the use of a monitor on the final rinse to regulate the conductivity of the water. Brunk has water regulators in place in all of the tumbling work centers to ensure we do not use excess water based on each parts process requirements. Brunk is also monitoring water usage in an effort to determine a baseline water usage. Recently completed consolidations of chilled water sources have reduced the internal heat load on the building by 15 tons.
Multi-faceted advanced manufacturing processes.	Brunk is using FEA analysis in the tool design area. FEA allows Brunk to analyze stress levels and concentrated load areas in our tool design. This analysis tool provides valuable feedback to select materials and to determine the dimensional requirements of elements in the design without physically producing and testing components. This saves consumption of materials, energy required for the manufacturing process to produce tooling components and the energy to test the components. Brunk is using 3D tooling designs and design analysis which provides valuable information at design reviews and throughout the design process. This allows us to select materials and run simulations without the need in many cases to produce an actual sample. This saves on consumption of materials and energy

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	required for the manufacturing process to produce tooling components and the energy to test the components. Brunk offers Rapid Model prototyping for prototyping tooling and component review. This technology produces a component from the various materials using a CAD model which allows the production prototype components without the need to create tooling or consuming energy to produce prototype components.
Machine time efficiency efforts, motor usage efficiency.	Brunk has implemented the Crest Cleaning System. This cleaning system reduces the process time by minimum of 50% over our aqueous systems. In addition the Crest cleaning system does not introduce waste water into our waste water disposal system. It is policy at Brunk that equipment not in use must be powered down. This includes the punch presses which use electric motors to run the fly wheels. Both AC frequency drives and DC Drives are left in voltage following applications which enables the motor to run more efficiently. Brunk has invested in New Servo Drive presses which offer a more efficient method of manufacturing. Brunk is aggressively controlling air use through the use of air valves on board tooling. This controls the timing of air in the stamping cycle. Brunk has gone from (3) 50 HP compressors to (1) 67 HP with an inverter drive. We typically operate at 200-250 cfm.
E-Based (paperless) shipping and documentation systems.	Brunk had invested in a state of the art ERP system which allows the paperless application of all processes. Process Instruction sheets master documents and Sub-tier supplier master documents are paperless after approval.
Other machines and equipment that consume fewer resources and produce more sustainable products.	Brunk has developed a progressive tool to produce multiple secondary stages in the process which will eliminate the need for multiple secondary operations conserving the associated resources. Brunk has developed a method to eliminate rivets and stake a lamination without a secondary operation, thus reducing the consumption of raw materials. Large reciprocating scrap trays are driven by an electric motor rather than traditional air operated devices. These are integrated into the press control. The unit is off when press is not in operation, thus conserving energy. Small Part collection is done by a small task based vacuum system rather than by vacuums created by plant air. This has caused a large air savings in CFM by creating an efficient evacuation of parts. This technology is uncommon in the stamping industry.

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Administrative Process Initiatives	
Green administrative controls like quick-time MSDS access.	Manufacturing Engineering reviews the MSDS for new chemicals and the MSDS is posted on the Brunk Intranet.
Environmentally friendly use and reuse/recycling of fluids.	Brunk is recycling the Crest Cleaning Solvent. The Crest system has an onboard distilling system to remove particulate from the solvent. Brunk has a program with Safety Clean to recycle the cleaning solvent in 55 gallon drums. All metals used throughout the plant are recycled. Oil and fluids management includes: • All waste oils and coolants are recycled. • Press oil is sample tested before changing which reduces the number of times the oil is changed. • High level of controlled stamping oil reduces overall volume, less mess, less stamp oils to have to wash off part. • By using resolver base control to deliver proper amount of lubricant at the proper time and location has reduced overall stamping oil consumption and improves wash cycles.
Use of organics versus synthetics, chip segregation and recycling efforts.	The aqueous wash waste, tumbling solutions and grinding solutions are processed through our pack press with no need for a waste hauler.
Reusable (opposed to single use) shipping and packaging materials.	Our packaging suppliers are designing trays using 3D modeling and molding analysis tools to reduce the packaging material. Brunk is reusing packaging for various components. Our customers send the packaging back to Brunk after the initial use. Brunk reviews the returned packaging and the packaging is reused at our discretion. This packaging is recycled on multiple occurrences.
Laptop battery disposal.	A battery disposal program for all batteries, alkaline, NiCd, Lead is managed by the Facilities and Automation Manager
Biodegradable gloves and other policies that reduce our carbon footprint.	We will use biodegradable bouffant beard covers and frocks in our white room.

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Physical Plant Initiatives	
High-efficiency and low amperage HVAC systems.	Brunk has 54 systems for AC and 25 systems for heat. Some of these units are high efficiency and some are operating legacy units. The plant air distribution is a loop system, which is the most efficient air delivery system. It operates at 105 PSI. A loop system offers consistent process pressure.
Reduction or elimination of Freon.	Brunk is not using Freon in the open air in our manufacturing processes. Current equipment purchases that use Freon internal to the machine are approved by the EPA for environment.
Recycling of office paper and employee bottles/cans.	Brunk is separating paper for recycling from the daily waste stream in selected areas.
Use of fume scrubbers.	Currently, Brunk has no exhaust requiring fume scrubbers. Brunk is currently working with TRC to identify potential EPA concerns to avoid the need for fume scrubbers. Brunk has a filtration system for the titanium welding system to contain the titanium in a safe environment because of the explosive potential of titanium dust.
Upgraded wall, flow and ceiling insulation.	Roof insulation was updated as part of a new rubber roof upgrade increasing the insulation factor.
Tree and shrub planting.	Brunk has won annual awards for the landscaping which include numerous trees. The out lots are fully wooded and contain both a woodland preserve and a wet land preserve.
Automatic light switch sensors.	Rest rooms have automatic light sensors.
Use of facility LED and florescent lighting;	High efficiency lighting (T-8) non-mercury lamps are used throughout plant. Certain sections of plant lighting are wired by work center area rather than by rows giving us the ability to light only need areas.
Development of a baseline for Energy and Water usage.	Water, Electricity, Natural Gas are reported monthly as a company metric.