Industrial Ventilation Systems Engineering Guide For Plastics Processing

Ultrasonic welding

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Ultrasonic welding is an industrial process whereby high-frequency ultrasonic acoustic vibrations are locally applied to work pieces being held together under pressure to create a solid-state weld. It is commonly used for plastics and metals, and especially for joining dissimilar materials. In ultrasonic welding, there are no connective bolts, nails, soldering materials, or adhesives necessary to bind the materials together. When used to join metals, the temperature stays well below the melting point of the involved materials, preventing any unwanted properties which may arise from high temperature exposure of the metal.

Welding

– Hanser Gardener 2003 Handbook of Plastics Joining: A Practical Guide By Plastics Design Library – PDL 1997 Page 137, 146 Albloushi, Ahmad Hussain;

Welding is a fabrication process that joins materials, usually metals or thermoplastics, primarily by using high temperature to melt the parts together and allow them to cool, causing fusion. Common alternative methods include solvent welding (of thermoplastics) using chemicals to melt materials being bonded without heat, and solid-state welding processes which bond without melting, such as pressure, cold welding, and diffusion bonding.

Metal welding is distinct from lower temperature bonding techniques such as brazing and soldering, which do not melt the base metal (parent metal) and instead require flowing a filler metal to solidify their bonds.

In addition to melting the base metal in welding, a filler material is typically added to the joint to form a pool of molten material (the weld pool...

Electric heating

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Electric heating is a process in which electrical energy is converted directly to heat energy. Common applications include space heating, cooking, water heating and industrial processes. An electric heater is an electrical device that converts an electric current into heat. The heating element inside every electric heater is an electrical resistor, and works on the principle of Joule heating: an electric current passing through a resistor will convert that electrical energy into heat energy. Most modern electric heating devices use nichrome wire as the active element; the heating element, depicted on the right, uses nichrome wire supported by ceramic insulators.

Alternatively, a heat pump can achieve around 150% – 600% efficiency for heating, or COP 1.5 - 6.0 Coefficient of performance, because...

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Anticipate, recognize, evaluate, control, and confirm (ARECC) is a decision-making framework and process used in the field of industrial hygiene (IH) to anticipate and recognize hazards, evaluate exposures, and control and confirm protection from risks (Figure 1). ARECC supports exposure- and population-informed hazard assessment, hazard- and population-informed exposure assessment, hazard- and exposure-informed population assessment, and risk-informed decision making in any endeavor.

Ain

agro-industrial sector. The activities of Alimentec focus on three priorities: ventilation systems, plastics packing and applied hygiene. The industrial fabric

Ain (; French: [ɛ̃] ; Arpitan: En) is a French department in the Auvergne-Rhône-Alpes region, Eastern France. Named after the Ain river, it is bordered by the Saône and Rhône rivers. Ain is located on the country's eastern edge, on the Swiss border, where it neighbours the cantons of Geneva and Vaud. In 2019, it had a population of 652,432.

Ain is composed of four geographically different areas (Bresse, Dombes, Bugey and Pays de Gex), each of which contribute to the diverse and dynamic economic development of the department. In Bresse, agriculture and agro-industry are dominated by the cultivation of cereals, cattle breeding, milk and cheese production as well as poultry farming. In Dombes, pisciculture assumes greater importance, as does winemaking in Bugey.

Ain's prefecture is Bourg-en-Bresse...

List of ISO standards 1–1999

1745:1975 Information processing – Basic mode control procedures for data communication systems ISO 1746:1998 Rubber or plastics hoses and tubing — Bending

This is a list of published International Organization for Standardization (ISO) standards and other deliverables. For a complete and up-to-date list of all the ISO standards, see the ISO catalogue.

The standards are protected by copyright and most of them must be purchased. However, about 300 of the standards produced by ISO and IEC's Joint Technical Committee 1 (JTC 1) have been made freely and publicly available.

Fume hood

constructed to allow for the safe handling and ventilation of perchloric acid and radionuclides and may be equipped with scrubber systems. Fume hoods of all

A fume hood (sometimes called a fume cupboard or fume closet, not to be confused with Extractor hood) is a type of local exhaust ventilation device that is designed to prevent users from being exposed to hazardous fumes, vapors, and dusts. The device is an enclosure with a movable sash window on one side that traps and exhausts gases and particulates either out of the area (through a duct) or back into the room (through air filtration), and is most frequently used in laboratory settings.

The first fume hoods, constructed from wood and glass, were developed in the early 1900s as a measure to protect individuals from harmful gaseous reaction by-products. Later developments in the 1970s and 80s allowed for the construction of more efficient devices out of epoxy powder-coated steel and flame-retardant...

Polypropylene

other plastics. It is often opaque or colored using pigments. Polypropylene is produced by the chain-growth polymerization of propene: The industrial production

Polypropylene (PP), also known as polypropene, is a thermoplastic polymer used in a wide variety of applications. It is produced via chain-growth polymerization from the monomer propylene.

Polypropylene belongs to the group of polyolefins and is partially crystalline and non-polar. Its properties are similar to polyethylene, but it is slightly harder and more heat-resistant. It is a white, mechanically rugged material and has a high chemical resistance.

Polypropylene is the second-most widely produced commodity plastic (after polyethylene).

Laser engraving

laser-engraved; some hard engineering plastics work well. Expanded plastics, foams and vinyls, however, are generally candidates for routing rather than laser

Laser engraving is the practice of using lasers to engrave an object. The engraving process renders a design by physically cutting into the object to remove material. The technique does not involve the use of inks or tool bits that contact the engraving surface and wear out, giving it an advantage over alternative marking technologies, where inks or bit heads have to be replaced regularly.

It is distinct from laser marking, which involves using a laser to mark an object via any of a variety of methods, including color change due to chemical alteration, charring, foaming, melting, ablation, and more. However, the term laser marking is also used as a generic term covering a broad spectrum of surfacing techniques including printing, hot-branding, and laser bonding. The machines for laser engraving...

Biodesign

ecological processes, living systems, and organic materials to architecture. Some architects use biological materials for construction, façade systems, and

Biodesign is an interdisciplinary field uniting design principles with biological sciences, engineering, and emerging biotechnologies. It focuses on the cooperation between living organisms (such as algae, bacteria, and fungi) to create architecture, materials, products, and systems. These components are sustainable, regenerative, and often adaptive to their environment. Biodesign takes inspiration from nature, sometimes using biology as its medium. In which case, it designs with living organisms, mimics biological processes (biomimicry), or deals with biofabricated materials. Different fields applying biodesign include architecture, fashion design, healthcare, industrial design, and materials science. One focus of biodesign is to drive regenerative and eco-conscious design solutions.