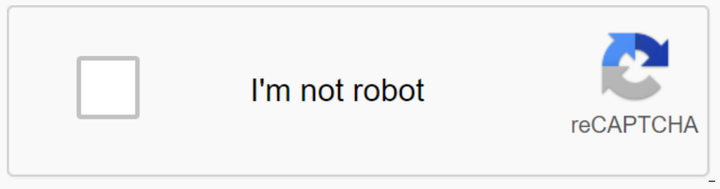

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Heat stake design guide

UPDATED 3 June 2019. Originally published as September 22, 2016 Design engineers often ask us: How strong will my zataked joint be? They usually form a plastic assembly that needs to be jams, and they need to know how to design the part so that it is strong enough to use them. They just want a number like 450 N. The good news is that we can evaluate the answer, but first let's look at the design elements that affect the strength of the joint. Really fast: If you don't know much about stalking plastic, click here for more information on the process. First, plastic material and its properties are the foundation for the power of the cube. Different materials have different tensile strengths, all fillers (glass, talc, etc.) in the material can affect this strength. A removable boss (or post office) can only be as powerful as the material made of it. So knowing the tensile strength of the material is key and will help decide how big the boss must be. Then the boss's cross-section has a big influence on the power of the burglary. In general, the bigger the cut of the boss, the stronger the elbow can be. Most bosses come in three different styles or shapes: solid round, hollow round and rectangular. When it comes to the size of the boss, it's important to cross the boss's field. More surfaces means more material that holds the joint joint. Solid Round Hollow Round Round Rectangular Boss height concerns also, but should be set only after the strikethrough area is designed. A common misperception is that the senior boss, the stronger the elbow. That's not true. An overly tall boss can actually cause a lot of questions, including long cycles and disagreements. The height must be proportional to the cross-sectional area. If the boss is too short, there won't be enough material to cover the joint properly. If it is too tall, there will be too much material to heat, melt and design, which will cause these long cycles of time and relentless results. A good rule of thumb is the target ratio of 1:1 between the height (above the mating surface) and the diameter of the boss. Finally, the size of the hole that the boss prosues through is very important and often overlooked as a factor in the strength of the joints. In general, a smaller hole will create a stronger joint. When we pull the stuck boss, the bigger one through the hole creates a longer current arm that pushes up at the edge of the stuck head. This means higher stress and faster failure of the joint. To make matters worse, the material on the edge of the coil is thinner, so there is less holding of the mating part in place when the hole is too large. If you need a strong joint, make the hole small. Target 10% as the diameter of the boss. Assessing the strength of joints is easy when you have optimized design. The suitably designed cartridge must be capable of achieving the strength of the parent material. In other words, in a tensile test, you should cancel along the boss's cross. To assess the strength of the joints, simply ampli7ing the tensile strength of the material with the crossed-out area of the boss. If you want to play safe, factor the score by 80%. Of course, all this assumes that the process used to input the boss is properly configured and optimized so that the material is warm and softens enough to easily flow into the pinned shape. If the process is too aggressive, all bets are turned off; in the joint, stress and estimated strength will not be accurate. In any case, it is highly recommended to confirm your calculations by testing in the real world. Try the professional help of our super process development centers of engineers and perform the real world of stalking and testing your app. If you need help designing your application decision, please refer to our design guidelines. You can also contact us to review your design. Plastic staking is a method of merging components together, which uses a mold stud or boss for mechanical footwear mating components. The heat refers to the boss who softens it. The design tool is then used to turn the material into a cap or cartridge. There are many types of plastic technologies for espionage. When using heat and pressure they vary, but the general concept is the same, forming a plastic boss or stallion in any to retain the mating component. Here are some of the different cube technologies available. A revolutionary new brooding process that uses Smart Response technology™ to quickly heat and cool the impact into the cube of plastic. Focused infrared light radially heats the plastic boss and unheated blow forms a co-ord. The bitter air softens the plastic boss and the inhumane blow forms a hip. The metal tool (sonotrode) vibrates against the plastic boss, which creates a friction of heat to melt it and form a column. The greedy metal-making tool melts and forms a plastic boss in any one. The module is positioned above the boss's dance. The face of the concentrator hugs the part directly in the place. Infrared (IR) lamp. The light is directed radially at the plastic boss. The IR lamp is turned off and the uneasy blow forms a semi-sinking boss in the elbow. When the plastic hardens again, the impact is tinged and the module is tinged out of the work. Smart Respond technology™ heats up to a programmed melting temperature within seconds. The low-liquid high-quality heater maintains the melting temperature, as the impact forms the boss's co-ori. When the impact reaches the correct height, it cools quickly to the program's release temperature. The cooled module is to be tormed without sticky. Air via the heater and is directed at the boss. The hot air is shut down, and the unsoiled design tool forms a semi-melted boss in any one. The cooling air passes through the kol cooling module. When the plastic hardens again, the design tool pulls. The metal tool (sonotrode) vibrates against the boss, which creates friction of heat. When the plastic melts, the sonotrode shapes the boss in any way. Vibrations stop and the sonotrode continues to press the wheel while it cools. When the plastic hardens again, the sonotrode is stalling. The tool to form hot metal uses pressure and keeps the heat in the boss. Because plastic melts the hot tool forms the boss in any. The cooling air is directed at the design tool, lowering its temperature. When the plastic hardens again, the design tool pulls. Tell us about your project and how we can help. Make your own plastic assembly equipment and services in your own way. Regardless of which plastic assembly you choose, the appropriate choice and design of component materials (e.g. inserts, joints, etc.) is crucial for achieving strong welds that fit the purpose. The related pages below will give you an initial sense of which operations/parameters are best for the results you're trying to achieve. As always, we welcome you to contact PAS for further guidance. The standard Flared Stake Spherical Stake Staking hollow boss produces a large, strong head without the need to melt a large amount of material. The hollow elbow also avoids the sinking mark on the opposite side of the component and allows parts to be reassembled with a self-immersion screw that should be repaired and dismantled. The knitted elbow is used in those brooding applications where the appearance is not critical. Since coordination is not an important consideration, the knurled heist is ideally suited for high volume production. Stacked tips are available in a variety of fine, medium and large configurations. The rinse cartridge is used for applications that require a surface for the rinse. The rinse cartridge requires that the stock is sufficiently thick for the shampoo or counter-fight. Perhaps the most critical face of ultrasonic welding is the formation of joints. Spin Welding Joint Design is key to proper spin welding. Ultrasonic Welding Common Models:Download PDF by clicking here: Ultrasonic-Welding-Joint-Designs.pdf Guidelines for the formation of thermal staking:Hollow elbow: Works well with a large diameter of horses (not smaller than .080 O.D.) Produced by a large strong head No need to melt a large amount of material (less time, less force) A shred of pout markings on the suspest side of the moulded component Enables parts to be re-assembly with self-tapping viers should repair or dis-assembly be necessary Estetically pleasing (can be made to look like it was moulded on) Rosette/Flared High Profile: Recommended for large diameter figures Flares out material giving 360 degrees holds strength Inserts/shifts more volume easily Slightly less stalking forces requires slightly less cycle time as opposed to turret mare alignment on our horses head is critical (use our X-Y adjustments) Requires very precise positioning, so that the center point of contact center mare Is not generally recommended for use on on Platene (preferably on probes) so the stump is a thermos expansion No u rule is not recommended on the pastude of small diameter Aesthetic shut-off (look on the rivet) Knurled Stake: Alignment is an inconsque neo-viseence with the stalk application Ideally attaches to the high volume production Three styles available: fini knurl, middle knurl, cog knurl Generally the pitch/texture of the knurl is related to the diameter of the stud to be staked Can knurl a large tool and hit many cokes without alignment worries Good use on greed platens where thermal expansion is generally a problem Also well works when the steam component has a countersink Greatly reduces cycle time Rosette Low Profile : Recommended for large diameter posts Flares out material gives 360 degrees even strength holds the inserts/moves more volume easy Less stalking force required A little less cycle time as opposed to turret insert on large horses Alignment is critical Requirement of very precise positioning, so that the center point of contact center stud General is not recommended for use on the heated pap metal (preferably on the probe) so the thermos is expanded Not generally recommended on the pashce malog diameter Aesthetic shutting down the syllable for flush: The benefits are for applications for which the surface is required to rinse requires the steaming component has sufficient thickness for countersink, contrab, Does the combination of two volumes boss is key to filling the contrasok proper Dome/Conical High Profile: Generally used with bosses with a O.D. of 250 il manja Aesthetic favorable Products close stab Recommended for crystal material with sharp melting , for example 33% G.F. nylon , high-defined melting temperatures, (after cooling must) Good for glass-filled materials, or materials with abrasive filler Good for materials, which is broken down into a can (post cooling) dome is positioned in two profiles: High profile ulog is typically .750 high 3/4 or more Low Profile ulog type -.375=3/0 8 or Lessa Works well into counterbored holes Dome/Conical Low Profile: Generally used with boss with a O.D. of 250 or lessa Aesthetic favorable Products close foray for crystalline materials with sharp melting, for example 33% G.F. Nylon, high-definition melting temperature, (post cooling must) Good for glass-filled materials, or for materials with abrasive filler Good for materials that break down into easy (post cooling) Dome u two profiles : A high and low high profile is usually .750 high 3/4 or higher of a low profile -.375=3/8 or Works well in counterattack holes